

# THE AMERICAN BEE JOURNAL

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## Contents of this Number.

### **Editor's Table.**

Editorial Items.....	481 to 483
The National Convention.....	482
Swiss Honey-Cake.....	483
"Yankee" Advertising in London.....	483

### **Correspondence :**

Uniting Bees for Winter.....	484
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### **Our Letter Box :**

Jno. F. Eggleston.....	484
J. W. Green, Levi N. Miller, H. L. Jeffrey, W. P. Johnson, P. Lattner, R. K. Moore, J. B. Dines, L. M. Roberts, C. Newsom, Harry G. Burnet, W. D. Foote.....	485
A. Malone, D. D. Palmer, J. W. Sanders, H. H. Cheney, Elisha Gallup, J. T. & J. G. Williamson.....	486

### **Conventions :**

Indiana State Convention.....	486
The North American Bee-Keepers' Society.....	487
President's Address.....	487, 514
Reports of Delegates on Honey Crop.....	488
Report of Representative to Europe.....	489, 514
The Tongue of the Honey Bee.....	490
How Bees take liquid into their Stomachs.....	492
Length of tongue in different races.....	493
Practical Conclusions.....	494
Patents as applied to Aparian Implements.....	495
Wintering Bees on Summer Stands.....	496
Monstrosities among Bees.....	498
Officers Elected for 1879-80.....	498
Moving Bees.....	499
Bee Forage in the South.....	500
Foul Brood ; Its dangers and its cure.....	502
L. C. Whiting's method for cure.....	504
The Bee of the Future.....	505
The next Progressive Step—Cyprian Bees.....	507
Wintering Bees, theoretically and practically considered.....	511
Sub-Earth Ventilation for Wintering Bees.....	512
Increasing the demand for honey—Marketing.....	515
Dysentery as a Bee Disease.....	517
Fertilization in Confinement.....	518
Qualities in Bees.....	520
Bee Enemies the Bee-Keepers' friends.....	521
Are Bees Taxable Property ?.....	521
Bees in the Malls.....	522
Are cheap queens the most profitable ?.....	522
Comb Foundation.....	522
National Apiary and Queen-Rearing Establishment.....	523
How to Prevent Swarming.....	524
Shall we induce people to keep bees ?.....	525
Introducing Virgin Queens.....	526
Can Bee-Culture be made profitable ?.....	527
Migratory Bee Keeping.....	528
Implements on Exhibition.....	528

**Any one having the following Nos. of the A. B. J. for sale will please write to us, naming price, as we wish to purchase them. July and Aug. 1866; Jan. 1875 and Jan., Feb., Apr., May and June 1877.**

**Wm. Carr, Esq., (England) has our thanks for copies of the Lincolnshire Bee-Keepers' Association List of Prizes for honey, hives, bees, &c.**

## Editor's Table.

"Home again ! Home again !  
From a Foreign Shore  
Oh ! How it fills our Soul with joy  
To greet our friends once more !"

**The Editor desires to greet all the readers of the BEE JOURNAL, and to thank them for the many kind words of greeting he has received since arriving home. Many thanks to one and all.**

**Mons. Bertrand, of Nyon, Switzerland, writes that in one of his mountain apiaries eight hives of bees gave 468 lbs. of honey, or 59 lbs. per hive.**

**The reports from Alsace and Lorraine indicate that the year—as far as July—has been favorable to cultivators of bees, especially in the way of increase of stock.**

**At the South Kensington (London) Bee and Honey Show, Everett's was the only American Honey Extractor on exhibition, and was awarded the second premium; the first premium being awarded to one invented by T. W. Cowan, Esq., a gentleman living near London. We thought we had stated this before, but find upon examination that it was omitted. In our August number page 337, we stated that four American exhibits intended for the Kilburn Show arrived too late for competition but were "much admired" by those who had seen them. Among these were the Everett Extractor.**



### The National Convention.

For the first time in the history of the National Association it has held an annual meeting in Chicago, and all seemed not only to pronounce it a grand success but to be even unwilling to have it adjourn. We had meetings during three full days, and at the last meeting, in the evening of the last day, the interest was even more manifest than at the first meeting of the first day.

The programme contained subjects of unusual interest, and these received the closest critical examination, and were discussed with the keenest relish. For the first time, we think we are safe in saying, the daily papers have given that attention to our meetings that they deserve. Four or five reporters were seen at the tables at each session, and from one to three columns of a report appeared in the Chicago daily papers each day. Either the papers are more enterprising, or else the subject is considered of more importance in the West than it is in the East.

We have this month given the space of the JOURNAL, usually devoted to other departments, almost wholly to the Convention Report, believing that our readers will consider it the *newest* as well as the *best* reading matter that could be offered to them at this time. It is conveniently divided by topics for discussion and every subject can easily be found by consulting the index on the first page. As will be readily seen, the last page is put into smaller type in order to have the Report complete, many advertisements having been crowded out entirely.

The place of the next meeting, Cincinnati, is well chosen, and will generally accommodate those from the South as well as those living in the central States. Let us express the hope that it will be a well-attended and very interesting meeting.

The Chicago Convention has been a grand success; the best of feeling having prevailed throughout.

**☞** We have determined to abandon the credit system after this year. There are about 1,000 of our subscribers who have not yet paid for the present year's subscription. To "dun" them is not only unpleasant but costs considerable, and we give timely notice now that in future we shall send the AMERICAN BEE JOURNAL only to those who have paid for it *in advance*. We do not willingly refuse to trust our subscribers, but really we cannot afford the luxury any longer. We think all will see the justice of this course and remit in time, so as to lose no numbers. We *do* wish those who are in arrears would pay up and save not only their own feelings but ours also.

**☞** We have received from the publisher, D. Bogue, London, a copy of the third edition of "Hunter's Manual of Bee-Keeping." It has been thoroughly revised and much improved. We notice in it many quotations from American authorities, and also engravings of many American implements for the apriary. It will, doubtless, aid British readers to join in the onward march of progress. Price, \$1.50.

**☞** From Mr. A. I. Root, Medina, O., we have received a copy of his new work, entitled "The A, B, C of Bee-Culture." It is now complete, and makes a handsome volume. It embraces "everything pertaining to the care of the honey-bee," and will be very valuable to every beginner, as well as those more advanced. Price, in cloth, \$1.25.

**☞** The Illustrated Christian Weekly and other papers have published Mrs. Cotton's advertisement stating that her hive and system would "insure a return of \$50.00 a year from every hive," &c. Mr. G. O. Goodhue, of Danville, Province of Quebec, has written to the Christian Weekly, reproving it for publishing it, especially as it also contained an editorial endorsement of Mrs. C. That paper pleads ignorance, and desires information. Will those therefore who have at hand facts concerning Mrs. Cotton's swindling operations, please send a statement of such to the Rev. G. L. Shearer, 150 Nassau St., New York. Copies of the AMERICAN BEE JOURNAL and Gleanings have already been sent to him, but he wants more facts from her victims.

**HONEY MARKET.**—White honey in the comb, unglassed sections, is quoted in Chicago, Cincinnati, St. Louis and New York at 15@16c.; extracted, 7@8c. In California—comb honey 15@16c.; extracted 10c@12c.; beeswax 24@26.

## The Swiss Honey-Cake.

In all our travels in Europe we found honey on the hotel tables but in two countries—Switzerland and Italy. But a peculiar kind of honey-cake is always found on the dessert-plates of every "table d'hôte," i. e. the dinner table where a regular course is served up at a stipulated price to all guests alike. The *Continental Gazette*, of August 28th, gives the following description of this honey-cake or "Leckerli," as it is called :

Every tourist in Switzerland quickly becomes acquainted with the oblong little biscuit compounded of honey, flour and certain roots, which goes by the name of "Basler Leckerli." He sees it invariably on the dessert-plates at every table d'hôte; the waiters of the Basle hotels are almost certain to thrust a packet of it upon his notice before he leaves the city; on his way to Basle or on his way from it, at the buffets of nearly every railway station in Alsace and Baden, he will be confronted by a small glass case with the superscription "Basler Leckerli," or the French adaptation, "Leckerlis de Bale." He may or may not be pleased with the curious flavor of this widely-advertised delicacy of the local confectioners, which is as famous in Basle as the "Lebkuchen" in Nuremberg and Bern, or the "Spanish bread" in Baden. Here and there in the streets of Basle he will come upon a manufactory of the article—"Leckerli-fabrik"—the sight of which will give him some conception of the enormous quantities of this piece of confectionery which are produced in the town of Holbein and Erasmus. A Swiss "Cook's Lexicome" gives no fewer than fifteen recipes for the concoction of Leckerli, and the popular dialectic poet of Basle, Theodor Meyer Merian, has devoted an entire poem to its history, qualities, and uses. The greatest trade in it, however, is done during the Christmas season. Thousands and thousands of packets are then sent by the Swiss to their friends and to children through the post; and it is said that a Switzer never goes to Basle on a tour of business or pleasure without being strictly charged by his wife and children, "Be sure to bring back a packet of real Leckerli."

Wm. H. Kirk, of Waterbury, Conn., died in September, after a week's illness. Mr. Kirk has been an enthusiastic bee-keeper for at least 20 years.

**MICHIGAN CONVENTION.**—The Annual State Convention of the Michigan Bee-Keepers' Association, will be held at Jackson, Mich., on Wednesday Dec. 10, 1879. Come all.

T. F. BINGHAM, Sec.

The Muscatine Bee-Keepers' Association will hold their Annual Convention on the 19th and 20th of November inst., at the court house, in the city of Muscatine, Iowa. All members of this Association are especially invited to attend our Annual Convention.

L. ALLEN, Pres.

## "Yankee" Advertising in London.

From the London Echo of a recent date we copy the following item, which appeared in their city news under the title of "A Dynamite 'Scare' in the City :"

Owing to alarming rumors in the locality, and also it would seem, to direct complaints on the part of some of the neighbors, the premises occupied by the firm of H. K. and F. B. Thurber and Co., 115 and 117 Cannon street, City, were yesterday afternoon visited officially by Superintendent Foster, and Inspector Carter, of the Metropolitan Police. It would appear, so far as particulars of the rumors and complaints are traceable to reliable sources that many of the passers-by in this busy thoroughfare, on Friday afternoon last, were seized with something approaching panic by observing, in prominent letters, the word "Dynamite" on a large number of wooden cases, then in course of unloading from a van. As may readily be supposed, from the well known fearfully destructive qualities of the article in question, the passers-by did not linger on the way, and the matter came to the ears of the police. Hence the official visit to the premises yesterday. It will be satisfactory to many who daily pass along this part of Cannon street to know that their fears are entirely groundless. The boxes in question, however, far from containing dynamite, really contain comb honey, the entire label running, "Handle gently as dynamite, as a drop of one inch will cause certain destruction to the contents." Such was the method taken by the American firm to direct special attention to the necessity of care in handling the boxes.

I notice that by the addition of a single letter "n" to "either" in my communication on page 445 in the October number, I am made to say exactly the contrary of what I wrote and meant.

C. W. TAYLOR.

## AN EXPLANATORY CARD.

Jerseyville, Ill., Oct. 28, 1879.

T. G. NEWMAN, ESQ., Chicago, Ill.:—After reading through carefully the circular of J. Y. Detweiler, of Ohio, I find I have been wrongly influenced, and am truly sorry for the part I have taken against you in said circular, for I find they are all wrong. Please publish this card in justice to myself.

Truly yours, ELVIN ARMSTRONG.

[We cheerfully give place to the above card from Mr. Armstrong. Other parties, whose names appear in that circular, have made the *amende honorable*. But few can read the circular without discovering that there is no real cause for complaint or for unkind words. "Truth is mighty and will prevail."—ED.]

Mr. C. F. Muth received premiums on display, quality, and merchantable shape of comb honey at the Cincinnati, O. Exposition, last month.



## Correspondence.

For the American Bee Journal.

### Uniting Bees for Winter.

G. M. DOOLITTLE.

That bees can be united many times with profit, is a thing that is generally known, but how to do it is not universally known, as appears by the questions asked by many. Strong colonies cannot be profitably united, for they are in a better condition as they are, than they would be when two or more were put together; but those that are weak and queenless are the ones to be united, in order to make them profitable to the owner.

Our usual plan of uniting is this: blow smoke into the entrance of the hives of bees to be united until the bees make a loud roaring, then select the stand you wish the bees to occupy and carry all to that place; lift the quilt or honey boards and smoke all thoroughly again, then select the hive you wish the bees to occupy and take out all the frames, with adhering bees, and put them into a hive or box for that purpose; put the hive on the stand and take a frame from the first one and then the other, till the hive is filled, then put on the quilt and the cover or cap. Take the remaining frames and shake the bees down at the entrance, taking a frame from a different hive each time, till all the bees are off the combs, then shake all the bees out of the hives that may not have been on the combs, and see that all enter the hive. If you have any choice in the queens, kill all but the one you desire to remain, otherwise pay no attention to queens. Take the hives and surplus combs and store them away nicely, for another year. Do not leave the hive or anything on the former stand for the bees to go back to, and they will all remain with the colony where they were united. Many will tell you to move the hives to be united a foot or so each day till you get them together, but we consider this a waste of time as well as a tedious operation.

The smoking of the bees so as to cause them to fill themselves with honey, and the general mixing up, induced by each bee being a stranger to the other, causes them to mark their location anew, and if a few should return and find no trace of their former home, they will soon go back to their new location. To illustrate: several years ago we united bees in this way

for the first time, and on the next pleasant day we saw bees hovering around the place where they had formerly stood. Thinking that perhaps they would not find their way back and would perish there, or go off as homeless wanderers to die, we placed a hive with several empty combs and a frame of honey on their former stands. In about an hour we went to see how many had returned and found them flying to and from the hives, quite briskly. We soon perceived that those going out were loaded and those going in were empty, and we said to ourselves, they were being robbed, but on examination we found that these returning bees had loaded up and were carrying the honey placed in the hives to their new location. We left the hives till night, when, on examination, we found the honey all gone, but not a bee had remained.

If those to be united are light in stores, take only the frames containing the most honey, and if they have not enough then, feed them. We usually unite during the last of Sep. or the first part of Oct., but if you have delayed uniting your weak colonies till now, it may be done the first of this month, on any day when the bees can fly freely.

Borodino, N. Y., Oct., 1879.

## Our Letter Box.

Garland, Sept. 19, 1879.

Enclosed find a small plant; please identify and report in the JOURNAL. It grows on rocky and barren land, and is at this time covered with bees; they seem to neglect the asters and golden rods growing by the side of it. I never discovered bees working on it till the fall of 1874; at that time it was very scarce, but is quite plenty since the fires have burnt over the rocky hillsides. The sample is of small size, and the upper half of the stalk. It grows from 1 to 2 feet high. JNO. F. EGGLESTON.

[This is *solidago bicolor*, and so a golden rod, although the flower is white and the habit of the plant quite unlike most of the flowers of this genus.—A. J. COOK.]

Chillicothe, Mo., Oct. 4, 1879.

To brother J. D. Enos, greeting: My assistant comes laughingly and calls my attention to your article on transferring bees, in the present (October) number of the JOURNAL. Let me assure you that I have been using for eight or nine years just the thing you describe—only that I have a useful improvement that you have not. I bend the wire in a "frame staple," as I call it, into a fence-row zig-zag shape. This gives it a spring margin that enables it to fit all frames even though they differ in width (or length if you use them lengthwise) as much as half



an inch. Try this improvement once and you will find it valuable. It comes quite convenient, too, when you wish to cover a joint in your comb, the staple reaching over on both pieces. I think if you will look over the back numbers of THE AMERICAN BEE JOURNAL some six or seven years ago, you will find a full description by myself of the thing you "only ask the credit of originating." I do not claim to have originated it for a certainty, only the improvement.

J. W. GREENE.

Rockwood, Mich., Oct. 10, 1879.

I commenced the spring with 55 colonies in fair condition; increased to 65; I tried Mr. R. Dart's plan to prevent increase. I had 800 lbs. of honey this year, leaving my bees plenty to winter on that is capped over.

LEVI N. MILLER.

Woodbury, Conn., Oct. 15, 1879.

The piece of comb containing eggs shipped to me by you, marked taken from the hive 10:20 a. m., Sept. 29th, arrived here Oct. 3d., at 3:15 p. m.: but on account of being away, it was not put into the hive on arrival. I reached home Oct. 4th, 7:45 p. m. I then put the comb under the quilt until Monday the 6th, and now I have over one-half of the cells with capped worker-brood in.

H. L. JEFFREY.

Baldwin, Pa., Oct. 24, 1879.

I am looking around for a good location for bee-keeping as a specialty—a location where there is no doubt of the existence of large surplus honey crop. Having very little knowledge of the country and its resources so far as regards bee-pasturage. I would like to have your opinion on where, in your judgment, you would consider the best location (leaving out California) for an apiary.

W. P. JOHNSON.

[There are scores of locations in nearly all the Central, and many of the Northern and Southern States, where the right man could undoubtedly do well as an apiarist. But the person desiring to engage in the business, is the one to determine if they will meet his wants.—ED.]

Worthington, Iowa, Oct. 6, 1879.

I have been a bee-keeper for 20 years, and this has been my poorest season for surplus honey. Last fall I put 73 colonies in my bee-cellars, left one on summer stand packed with chaff, and 8 piled up in a fence corner of the bee-yard, surrounded and covered with straw. All came out strong, one was queenless and two had drone-laying queens. I had them all very strong by the middle of May. Extracted the first honey June 15th, the last on July 5th; in all, 2885 lbs., besides 195 lbs. comb honey in section-boxes. I increased to 112 by dividing, in August; all are now strong in bees and honey. I shall prepare for wintering the same as last fall, and have no fear of any loss. I am convinced it is not in wintering, but in preparing them for winter, that we are either successful or meet with loss.

P. LATTNER.

Shelbyville, Ky., Oct. 25, 1879.

The past has been a poor season for honey. Bees in fair condition now. Have not had a natural swarm this year, from 18 colonies. Made two and lost two during the season.

ROBT. K. MOORE.

Libertyville, Mo., Oct. 25, 1879.

I have 11 colonies of Italian bees in good condition for wintering. Have sold \$60. worth of queens. The BEE JOURNAL gets more valuable every month. Thanks.

J. B. DINES.

Fort Atkinson, Wis., Oct. 13, 1879.

Bees have done very poorly in this section this season. My 30 colonies only gave 15 increase and 300 lbs. of surplus honey, more than what I had to feed back to the latest swarms. This, you see, will barely pay expenses. Some are nearly disgusted and offer to sell for three dollars per colony in large quantities.

L. M. ROBERTS.

Crown City, O., Oct. 7, 1879.

I'm happy! Why? Because my 92 colonies have enough honey to winter them, and what else? Why over 50 colonies have queens reared this summer and the balance last year's queens. My bees are strong, and getting honey rapidly. I'm going to have an outside box for every hive, and keep hives and sections stuffed summer and winter, with proper ventilation. Without "stuffing," I claim no one can winter successfully and obtain the largest yield of honey on summer stands. I sleep better when my bees are packed nicely.

C. NEWSOM.

Blairstown, Iowa, Oct. 12, 1878.

The season here has been dry, and consequently bees have not done well. In May and June they gathered considerable honey, where they were kept strong and not allowed to swarm, but since then they have done very little, on buckwheat, golden rod and asters; not more than enough for winter stores. We had a frost about the middle of September that destroyed all forage except white clover which is blooming quite profusely, though not yielding much honey. Since the frost, the weather has been very warm, inducing much activity and consumption of stores so that it is impossible to open a hive without attracting robbers.

HARRY G. BURNETT.

Johnstown, N. Y., Oct. 17, 1879.

During the very warm days we have had in October a neighbor said to me: "I think there is something wrong with your bees, and that you are losing a great many; they come to my garden and are on the decaying fruit—apples, pears, &c.—and I notice many are unable to fly away; they attempt, but seem weak, and only fly a few inches and fall, and then run over the ground, making apparently frantic efforts to get away, but are unable." This seemed surprising to me, as I supposed my entire apiary was in a healthy and thrifty condition, and a little consideration has convinced me that the bees had become intoxicated on the fermented juice of decaying fruit.

W. D. FOOTE



Garden Island, Ont., Aug. 26, 1879.

Some years ago, at a Cleveland convention—I think it was in 1872—Mr. J. W. Hosmer gave his experience in wintering bees. He said “he did not put any colony into winter quarters that had more than a quart of bees in it. If more than one quart was in any hive, when the time came to put them away for winter, he emptied them on the ground to die. His hives wintered well, and consumed only about 10 lbs. honey.” Does Mr. Hosmer still practice the same plan with success, or has his quart wintering business played him out? Also, have any of the successful apiarists adopted his plan of wintering? A. MALONE.

[At the time you mention Mr. Hosmer's plan was considerably talked and written about. It did not, however, come into use among bee-keepers, not even with Mr. Hosmer himself, so far as we know. Very likely colonies thus treated might winter well, in some seasons, but that the plan is a practical one hardly agrees with our theory or practice.—Ed.]

New Boston, Ill., Oct. 8, 1879.

From 250 colonies we have 1,000 lbs extracted and 1,600 lbs comb honey. This is a very small crop, but probably this is the best average in the Mississippi Valley. Many bees in old hives, as well as new swarms, are now (Oct. 3) starving. The loss of bees this winter and next spring will be large. Does bee-keeping pay? Is there money in the apiary? Only for those who have good locations, who are up to the times and make a specialty of the “bees-ness.” D. D. PALMER.

LeGrand, Iowa, Oct. 14, 1879.

Bees have done poorly here this season, especially since the dry hot weather set in about the middle of July. Up to that time they did well. I wintered 14 colonies without loss, but afterwards lost a queenless one. Many lost the majority of their bees here from improper wintering. They will lose heavily this winter, if there is not more or less feeding done this fall.

J. W. SANDERS.

East Saginaw, Mich., Oct. 13, 1879.

I send herewith one of my atmospheric feeders, for your museum, and for exhibition at the National Convention. It stands on an incline, so that no feed will remain after the bees are through taking it. No bees can be drowned in the shallow trough, and no robbers can get at it. To fill it, turn the face side up, remove the thumb-screw, fill and replace the screw, and place it at the entrance of the hive, face downward.

H. H. CHENEY.

[It was placed in our museum, after being exhibited at the Convention.—Ed.]

Scienega, Cal., Sept. 10, 1879.

I see the AMERICAN BEE JOURNAL keeps fully up to its former usefulness and reliability. Am uncertain about my future plans

as yet. The reason is, an entire failure in Southern California so far as surplus honey is concerned. Mr. Strother had his honey house, together with a lot of hives, barrels, &c., burned; supposed to be spontaneous combustion. Loss about \$700. Mr. Shaw had a grizzly bear commence destroying his apiary; he finally shot the old fellow; he weighed 800 lbs.

ELISHA GALLUP.

Brandywine Summit, Pa., Oct. 22, 1879.

I have received the 1st premium and diploma at the Chester County Fair. Also the 1st premium and medal for finest exhibit of honey and bees and bee fixtures or aparian supplies at Delaware County Fair. It has been a bad “fall” for bees here. We have had no rain for two months until to-night.

J. T. & J. G. WILLIAMSON.

## Conventions.

### Indiana State Convention.

Quite a number of bee-keepers met at Indianapolis, Ind., October 3, 1879. The meeting was called to order at 10 a. m., by C. S. Schofield, who briefly stated that the object of the meeting was to organize an Association of the bee-keepers of the State of Indiana, with the view of holding a convention during the coming winter, and as often in the future as the Association may see fit.

Mr. A. G. Hill, of Kendallville, was chosen temporary Chairman with F. L. Dougherty as Secretary, when on motion it was decided to proceed to a permanent organization. Mr. Hill was proposed for President, but he declined on account of pressing business, when Mr. C. S. Schofield, of Indianapolis, was chosen by acclamation. It was then decided to elect two Vice Presidents, one in the northern and one in the southern part of the State—the National Road to be the dividing line. A. G. Hill was elected for the northern, and J. M. Brooks for the southern district. F. L. Dougherty was made Secretary and the Rev. M. Mahin, of Logansport, Treasurer of the Association.

On motion, the President appointed a committee of three for the purpose of drafting a Constitution and By-laws, to be adopted at the next regular meeting. The committee was also instructed to prepare a programme for that occasion. The President and Secretary were authorized to procure a suitable room in which to hold the next meeting. Mr. C. F. Muth, of Cincinnati, O., was present and gave his views on “wintering” and the details of the work before the convention, etc. A vote of thanks was tendered him and he was cordially invited to be present at the next meeting. A vote of thanks was also tendered the State Board of Agriculture and the press for favors.

The Secretary was instructed to send each of the Bee Journals a copy of the proceedings with the request to notice. Adjourned to meet at Indianapolis Tuesday, Jan. 13th, 1880, at 9 a. m. F. L. DOUGHERTY, Sec.

## North American Bee-Keepers' Society

The Tenth Annual Convention, held in Chicago, Oct. 21, 1879, was called to order at 10 A. M., President Thomas G. Newman in the chair.

The President delivered his annual address as follows :

### President's Address.

**LADIES AND GENTLEMEN :**—Since last we met, a year of toil and care has passed—a winter of disaster to our bees, and a summer of greatly decreased yield of honey. Yet we have much to be thankful for, when we compare our condition with that of our brother bee-keepers in Europe, who have not only had sad experience with foul-brood and decimated colonies, but have had to feed their bees almost the entire summer, having no yield of honey to cheer their spirits or sweeten their palates.

How to successfully winter our bees will be a subject for discussion during this meeting, and we hope some valuable information may be elicited. The honey yield though it has not been as good as it was last year, is still a very creditable one—probably much over one-half. Therefore the demand for honey will be large, not only for our own country, but also for Europe; and the prices will be correspondingly advanced. Long before next year's crop is gathered, there will probably be no honey upon the markets.

At our last meeting, it was a matter for general rejoicing that America's greatest bee-master, the Rev. L. L. Langstroth, was partially restored to health, and we all expected to greet him at this meeting, but alas for human plans, he is not only not here, but he is totally unable even to enjoy the reading of our proceedings. His old life-long malady has again laid him prostrate, and the bony fingers of poverty are loudly knocking on the window-panes of his residence. In June the Wisconsin Association made an appeal to bee-keepers in his behalf and the AMERICAN BEE JOURNAL started a subscription list; from the latter \$100 have been realized and sent to his relief. We hope that this Association will give this matter the attention that it deserves.

The subjects under discussion at this meeting are varied and momentous. We hope that all the discussions will be carried on in a spirit of candor and fairness—that no unkind word nor harsh expression may mar our proceedings—and that harmony may characterize the deliberations of this assembly. Remember that we speak not only to those who are present, but also to the thousands who await with almost breathless anxiety the published report of our proceedings. Should any be so thoughtless as to come here to ventilate their pique or jealousy or to serve their own selfish ends, it will be the duty of this Convention to kindly but firmly inform them that "no entering wedge of discord" will be tolerated, even for a moment.

As to the matter of adulteration of honey, that is in a great measure corrected—the price of honey is now so low that it is no

longer profitable to adulterate it, and therefore it is, in a large measure, now "among the things that were." Honey is one of the purest and most delicious of sweets, and is taking the place of the adulterated syrups, especially is this so in the pure extracted form. Extracted honey will soon, we think, become a staple article in the markets of the world. We were much interested in the many uses found for it in Austria and Germany; at the Honey Show in Prague one room was devoted to cakes, ginger-bread, confectionery, mead and wine made from honey. The display was very grand and attractive, the products were exceedingly tempting and palatable, and the demand for them was highly satisfactory. Many lessons are to be learned by us yet in this line.

Creating a home demand for honey was a subject greatly recommended by our last meeting. I am happy to announce that this advice has very largely been acted upon, and I think it quite safe to say that the "home demand" has been more than doubled during the past year.

Many of our Vice Presidents have nobly attended to their duties in the different States, Territories and Provinces. They have used commendable zeal in getting the attention of Managers of State, County and District Fairs, and having prizes for honey and bees inserted in many of the Premium Lists. To many of them this Association should give the encouraging "Well Done;" and we hope that those Vice Presidents who have so nobly spent their time, money and energy to further the interests of their constituents may be re-elected, to still further "help on the good work" during the coming year.

The Executive Committee thought best to begin slow, and so have only gotten up Diplomas for the use of Vice Presidents in awarding prizes, though the last Convention gave them discretionary powers, as to the getting up of medals, &c. Another year medals may serve a good purpose. The "Programmes" for this Convention, which you all have for use, have been produced without cost to the Society—the advertisers paying the entire expense.

We hope that this Society will perfect some plan at this session to make its power felt by the railroads whose freight tariffs discriminate against the bee-keeper by demanding double the amount charged for other merchandise, for carrying bees, honey, hives, &c. We must combine and use our united power to affect this. Individuals are powerless for such work; it takes the united efforts of large bodies to cope with such gigantic monopolies.

In conclusion, allow me to thank you for the honor conferred on me, by the last meeting in unanimously choosing me for your presiding officer. Though conscious of many short-comings, I have endeavored to serve you to the best of my ability during the past year, and now, as soon as my successor is appointed I shall have pleasure in retiring, wishing the Society a happy and prosperous future.

On motion of Mr. F. W. Chapman, Illinois, a committee of three was appointed on President's address. Chair



appointed F. W. Chapman, Ill., D. A. Jones, Ontario, and Mrs. L. Harrison, Ill., said committee.

The Secretary made the following report :

In the absence of our treasurer, Mr. J. H. Nellis, I have but little to report. All our proceedings of our last annual meeting were published in full in the AMERICAN BEE JOURNAL, and are well known to you, so it would be only a loss of time to detain you on that head further than to say to those here who were not present then, that the good feeling that prevailed augured well for our future meetings, and that we feel assured that each year will add to our numbers, and the increased importance of our yearly coming together to interchange views and thus advance the interests of bee-keeping by combined action as in other pursuits. At the close of our last meeting, I gave the Treasurer the roll of members for last year and the dues. He was recently in New York, and I was told he would be here, and confidently expected to see him, and hear him read the Treasurer's report. I did not bring with me the copy I kept. We hope to have this before the close of the Convention.

Our Eastern members who are here for the first time are undoubtedly surprised, as am I, with the magnificent buildings, and distances, and wealth, and business thrift of this city. The feature that most strikes me is the number of workingmen's houses. These houses are great safeguards. A man with a house of his own is at once a better citizen. I have heard men living in rented houses talk against the value of property, and belittle everything in the shape of real estate, improved or unimproved, but let them own small houses even, and at once they talk of progress, and inspire all they meet with cheerful views of the prosperity of the country, and you can trust them in riot or revolution to be on the right side.

The report was accepted and adopted.

The report of the Treasurer having been received, was read and accepted as follows: Received from Secretary, \$48.00; paid orders on Treasurer, \$18.50; balance in treasury, \$29.50.

Prof. Cook suggested that reports as to the honey crop and condition of the bees in each State be called for. The following were given as such

#### State Reports.

C. S. Schofield, Indiana, reported the formation of a State Bee-Keepers' Association in Indiana, and extended an invitation to all bee-keepers to visit them at their next session. He reported a decrease in the honey harvest of the past season. Average  $\frac{1}{4}$  of a crop.

The report of Dr. W. W. Hipolite, Vice President for Arkansas, was read,

giving a discouraging account of the honey crop in his State.

C. S. Hubbard, Rochelle, Ill., reported a short crop of extracted honey.

F. W. Chapman, Morrison, Ill., reported light crop—mostly extracted.

R. R. Murphy, Fulton County, Ill., reported a quarter crop in the State at large.

Charles Dadant, Hamilton Co., Ill., reported one-third of a crop.

Dr. Matthews, Livingston Co., Ill., reported one-fourth of a crop.

Rev. Mr. Clute, Iowa City, Iowa, reported one-fourth average; about one-half an average increase in bees; condition bad.

E. D. Godfrey, Red Oak, Iowa, reports no surplus in Southwestern Iowa; bees in poor condition; crop one-third.

A. B. Cheney, Sparta Center, Mich., reported a short honey crop, and small increase.

James Heddon, Dowagiac, Mich., from 500 colonies reported 7,000 lbs.; bees increased about 200 per cent. by natural swarming; also reported experiments in wintering, both in and out of doors, with about equal results, but thinks the Italians preferable for withstanding the winters.

H. A. Burch, South Haven, Mich., reported about half a crop of honey.

T. F. Bingham, Allegan, Mich., reported about half last year's honey yield.

Mr. Darling, Indiana, reported about one-third yield of honey in his State, and bees in good condition when they had been properly taken care of.

Prof. Cook, Lansing, Mich., had to report five flourishing county societies in his State, besides one distinct and one State organization; about  $\frac{1}{2}$  crop of honey.

A. S. Haskins, Lawrence, Mich., reported about half usual yield of honey.

G. M. Hawley, Lincoln, Neb., reported a poor season for honey, but good for increase in bees.

A. J. King, New York city, reported a loss of one-half the bees in wintering; about one-half an average crop of honey, and about double the usual price for it. His 25 colonies in New York had done much better than those he had in New Jersey.

Dr. Parmly, New York city, reported much swarming, but poor honey yield.

Mrs. Harrison inquired if the bees in New York city obtained their honey from the candy stands, etc.

Dr. Parmly answered it was from the public and private parks and flower gardens.

D. M. Ketcham, Wayne county, N. Y., reported an increase from 50 to 115 colonies, and secured 2,300 lbs honey.

G. W. Zimmermann, Napoleon, O., reported an increase from 16 to 40 colonies by artificial swarming; two-thirds an average yield of honey through the State.

Rev. W. F. Clarke, Guelph, Ont., reported two-thirds an average yield.

D. A. Jones, Beeton, Ont., reported the best surplus yield obtained for years, mostly extracted. His crop was about 75,000 lbs, from 300 colonies in the spring.

F. F. Collins, Dallas, Tex., reported a disastrous honey season, owing to long-continued drought, though in the coast region of the State there had been more than an average. Judge Andrews had not obtained one pound of surplus from his 300 colonies.

C. Grimm, Jefferson, Wis., reported less than half an average honey crop, owing to lack of nectar secretion in basswood; from 290 colonies obtained but 4,000 lbs. extracted and 2,000 lbs. comb honey; he had obtained 115 natural swarms.

Mrs. F. A. Dunham, Wisconsin, reported a light honey yield.

A. A. Winslow, New Holstein, Wis., reported about half a crop in his locality. In northern portion of the State almost a total failure. Last swarm Oct. 16.

L. H. Pennel, LaCrosse, Wis., reported a good yield, mostly basswood and white clover.

W. P. Clement, Monticello, Wis. Honey crop good to last July. Excessive swarming, and bees not in best condition.

T. S. Bull, Valparaiso, Ind., in the spring had 145 colonies; increased to 245; obtained 8,500 lbs. honey.

#### Afternoon Session.

President Newman, Representative to the Bee and Honey Shows of Europe, made the following

#### Report of the Representative to Europe.

At the last meeting of this Society your President was appointed to represent the bee-keepers of America at the Bee and Honey Shows and Conventions of the sister societies in Europe, during the summer of this year. In accordance with this desire your President has, at his own expense, and in the interest of American bee-culture, visited three bee and honey shows in England, one in Scotland, one in Switzerland, and one in Austria. He has also visited some of the most prominent bee-masters in England, Scotland, Italy, Switzerland, Austria, Germany and France, and has been uniformly received with great enthusiasm.

As Americans generally approve the more readily the *practical* side of all questions, you are perhaps even now quite ready to ask: "Of what practical use is the knowl-

edge obtained?" and "How can it be rendered beneficial to us?" Anticipating such questions, let me briefly answer them. For years have we been anxiously looking for some new avenue for the consumption of our large production of honey. We have looked in vain to the North, the South and the West, to furnish such a boon. The East is the only portion of Earth's surface that furnishes us any "ray of hope." And already have we astonished both the producers as well as the consumers of honey in England, by sending them 180 tons of honey in the comb, as well as hundreds of tons of extracted honey. We have also sent large shipments to the continental countries of Europe, and many of the honey producers there began to feel that we were encroaching upon their territory and trampling upon their rights. In England, the *British Bee Journal* says they were like smoked bees fully "alarmed," and began to look around "to save themselves and their belongings." They really began to feel jealous of us, and to say unkind things about American honey. The "injury," we are happy to say, was imaginary—not real! We made a thorough investigation and then made it our chief business to discuss the matter with them, endeavoring to demonstrate that not one in a thousand now are eating honey that should and would do so, were the prices demanded for it more reasonable! American honey has been transported to Europe and then sold at a profit for about one-half the prices demanded for that produced in the several countries of Europe. Heretofore it has been considered a "luxury," to be enjoyed by the rich only! but, we must use every effort to *popularize* the consumption of honey. It must be taken by the masses as one of the *necessaries* in every day life, for it is not only one of the purest and most delicious of sweets, but also one of the cheapest that Nature produces!

We labored persistently to show the apiarists of Europe this "more excellent way," and though the battle was hotly contested we are rewarded by knowing that "Victory perched upon our banners," and the position we took is now fully endorsed by hundreds of the best and most enterprising of their apiarists. The *British Bee Journal*, some time since said: "We owe it to American enterprise that the honey market question has been so thoroughly investigated" and then that *Journal* generously added: "We think it right to acknowledge that the American honey merchants have helped us out of what was a sore difficulty, viz: the means of disposing of our honey. They have proved that if in salable packages, it will find its way into our grocers' shops, and thence into family cupboards for every-day use."

Not only did the prominent British bee-keepers endorse this position, but the British Bee-Keepers' Association presented us with its silver medal in token of its appreciation of our services as well as a souvenir of our visit. The Caledonian Apriarian Society also presented us with its silver medal not only in honor of our visit to its annual session, but also as it said in recognition of the services we had "rendered to the science of bee-culture"; they



also treated us with unbounded enthusiasm. The Swiss "Societe d'Apiculture" heartily approved of our position and enthusiastically ratified it with a hearty "three times three" cheering lustily for American enterprise and practical aparian methods. Hundreds of individual bee-keepers, all over Europe, also fully endorsed our position and received us with the greatest cordiality. Though it has cost us many hundreds of dollars to make the trip, we are constrained to believe that the interests of honey producers throughout the world, have been greatly enhanced thereby. We feel quite confident that the effects will be manifest in the years that are to come.

It is as true in Europe as in America that we must have broad business-like views, unattended with prejudice, on all points pertaining to the consumption of honey—for consumption is the end and purpose of all production! Two cardinal points present themselves, and these are *economical production and general consumption!* It is quite essential that these should be "talked up," for thoughts beget words and words produce actions with persons that are in earnest! "A long pull, a strong pull, and a pull all together" will produce wonders in this direction, and it is certainly worth while for bee-culturists of the whole world to see what wonders may be produced by *united action!* I have put this question to thousands in Europe, and now ask the intelligent and progressive apiarists of America—"Shall we try it?"

It appears to me that it needs no argument to prove that no good can possibly accrue to the honey interests of the world, by the bee-keepers of one locality or country talking against the honey produced in another locality or country. All honey is not alike, either in color or flavor—but all is good for some purpose or other, either the table or the manufactory. Our aim should be to elevate the science, not to underrate our fellow laborers—to excel in bee-management, not to undersell our neighbors! We should agree upon a price that will pay for production and at the same time not retard consumption, and then all should be guided by this, and thus aid in establishing a regular market price for honey, the same as is obtained for wheat, corn and oats.

America stands first in the world for honey production, as well as for scientific management and improved implements for the apiary. In Great Britain this year all crops are a failure. On the Continent generally the crops are very light. To America therefore belongs the humane work of very largely feeding the world not only with meat and all kinds of field produce, but also to sweeten it with her excellent honey.

So far as circumstances have permitted, I have endeavored everywhere to cultivate broad views concerning the production and consumption of honey, and to establish a fraternal bond of union among the bee-culturists of the world. How far I have been successful in this task I shall leave others to say, and time to prove. The unbounded enthusiasm with which I have been greeted everywhere will be remembered as long as reason holds her sway. Of course I am well aware that this was intended in a large

measure for the great body of apiarists in America whom I had the honor to represent, and I know you will all accept the fraternal and cordial welcome of your Representative as a gratifying evidence of the friendly feeling which exists in Europe towards the hosts of progressive bee-culturists of America, and a positive proof that in the great work before us, Europe will stand side by side with America, and take its part in the onward, sweeping tide of destiny.

In submitting this report your Representative trusts that it will meet with your entire approbation.

Rev. W. F. Clarke, Ontario, moved the report be referred to a committee of three. Carried.

The Convention appointed Rev. W. F. Clarke, Ontario; Prof. A. J. Cook, Michigan, and Rev. O. Clute, Iowa, said committee.

The Convention appointed the following committee for the nomination of officers for the ensuing year: Rev. O. Clute, Iowa; T. F. Bingham, Michigan; D. A. Jones, Ontario; Mrs. F. A. Dunham, Wis., and A. J. King, New York city.

Prof. A. J. Cook, Michigan Agricultural College read, and with diagrams illustrated the following, on

#### **The Tongue of the Honey Bee.**

It gives me great pleasure to meet so many of the intelligent, hard-working and successful bee-keepers of our country. I am always proud to be associated with those whose earnest thought and hard labor have added to the productions, and so to the wealth and happiness of our people.

The Apostle James says of the human tongue: "that it is a little member and boasteth great things." The tongue of the honey-bee is much smaller, but never boasteth, except in the good way of grand accomplishment.

The bee is, and has long been, of great importance to the commercial world, and this, together with the fascination inseparable from its study, have led many of the ablest scientists to carefully investigate its structure and habits. Yet I know not if there exists to-day an accurate description of the bee's tongue, and the method by which the insect procures its food.

The literature of the subject abounds in confusion and inaccuracy. The most learned scientists, those usually the most careful and accurate, like Reaumur, Newport, and Carpenter, give voice to palpable errors. Even the last edition of the Encyclopaedia Britannica gives further life to these old erroneous views. Let us give brief attention to some of these descriptions.

Hogg says the bee's tongue is cylindrical; Kirby, Spence and Neighbour state that it is flat; Reaumur and Chambers that it is

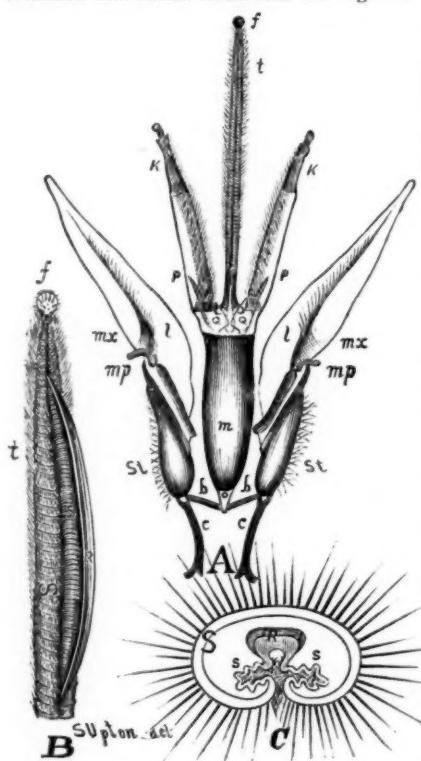
between the two. Reaumur, Newport, Kirby, Spence, Carpenter, Shuckard, Bevan, and Hunter all state that the tongue is solid, and that the honey is sopped up, or taken through a tube, formed by the close approximation of the maxillæ labium, and labial palpi. Newport speaks of a hairy sheath along the under side of the basal two-thirds of the organ. Neighbour says there is a gutter throughout the entire length of the tongue. While Swammerdam, Lamarck, Burmeister, Wildman and Munn claim that the organ is

1878, Mr. V. T. Chambers, an able entomologist of Covington, Kentucky, published a very admirable paper upon this subject. In the American Quarterly Microscopical Journal for 1879, p. 287, the subject was again presented in a beautifully illustrated article by Mr. J. D. Hyatt, President of the New York Microscopical Society. I learn that Wolff has published a fully illustrated memoir on the anatomy of the honey-bee which, I regret to say, I have not seen. From Messrs. Chambers and Hyatt's papers, and my own researches and observations, I am able to present the following facts:

The mouth-parts of the honey-bee brought into requisition when the insect takes a liquid into its pharynx, are the maxillæ and the labium.

The maxillæ or second jaws (see *mx* in Fig. A) are situated each side of the labium. They are hinged to the head by the strong cardos (see *c*, *c* in Fig. A) which are chitinous rods. Extending forward from the cardo is the more flattened stipes (see *st*, *st* in Fig. A) which is also mainly chitinous. From the stipes projects the triangular, deeply grooved lacinia (see *l*, *l* in Fig. A). This is more membranous, but it is strengthened by a ridge of chitine which extends to the apex. At the base the very rudimentary maxillary palpi (see *mp*, *mp* in Fig. A) are visible, while scattering hairs project from the inner margins. When the maxillæ are brought close together a tube is formed, which is continued by aid of a colorless membrane to the opening into the pharynx. This opening is beneath the labium and between the mandibles. The colorless membrane is continuous with the epipharynx. The muscles which move the maxillæ are attached mainly to the cardo and stipes.

The labium or lower lip of the worker honey-bee is from twenty-three to twenty-seven hundredths of an inch long. It consists of a central portion, and two pairs of appendages, the paraglossæ (see *P*, *P* in Fig. A) and the labial palpi (see *k*, *k* in Fig. A). The central portion is divided into a basal two-sevenths, or mentum (see *m* in Fig. A) and the terminal five-sevenths or ligula (see *t* in Fig. A & B). The mentum is about seven-hundredths of an inch long. It is hinged to the sub-mentum (see *o* in Fig. A) which in turn is hinged to the maxillæ by two chitinous rods (see *b*, *b* in Fig. A). These rods permit free motion, and to them are attached muscles, which in part affect the movements of the labium. The mentum is a flattened cylinder, the floor and sides of which are thick and opaque, because of the abundance of chitine contained in their structure. While lining this chitinous gutter and completing the tube is a thin colorless membrane, which is but the anterior prolongation of the pharynx. There are also abundant muscles within the mentum which extend



tubular. Newport and Carpenter assert that the bee's tongue is muscular, which is denied by Cuvier, Reaumur and Chambers.

That bees lap the nectar is affirmed by Reaumur, Newport, Kirby and Spence, Savigny, Carpenter, Bevan and Hunter; while Swammerdam, Wildman, Lamarck, Burmeister, Munn and Neighbour claim that the bees take liquids by suction.

Amid these conflicting views let us see if we may find the truth. To do this we must examine closely the structure of the organ, and also watch the insect as it is taking its fill of honey or some other liquid.

In the April number of the Journal of the Cincinnati Society of Natural History, for



even for a short distance along the sides of the base of the tongue. These not only affect the motion of the whole labium, but also protract and retract the ligula or tongue.

The ligula or tongue (Fig. A & B, t) extends from the anterior extremity of the mentum. It consists of a sheath (Fig. I, s) which appears annulated from the many rows of yellowish hairs. When not distended the sheath, as seen in cross-section (Fig. C) is kidney-shaped. It has a slit (Fig. C, h) along the under surface, from the base to very near the end. In some specimens the slit seems to reach quite to the end. Within the sheath is a small colored, triangular rod, (Fig. C, R) darker than the sheath, which except for a slit (Fig. C, h) on its under surface, would form a tube (Fig. C, R); in fact the sides of the rod along the slit can be brought insuch close contact as virtually to form a tube. Fine hairs project from the walls either side the slit (Fig. C, h) into the tube, which doubtless aid in making the tube more perfect. Along the back of the rod is a conspicuous layer which Mr. Hyatt asserts is muscular. If this be so we can readily see how its action would spread the walls and open the slit. The rod projects beyond the sheath, as an imperfect funnel, the "button" of Reaumur, (Fig. A & B, f). The wanting section of the funnel harmonizes with the slit in the rod. Near the end, the rod seems firmly attached to the sheath. Any attempt to draw the rod from this position is quite certain to rupture the sheath. The rod when extended projects from sixteen to eighteen-hundredths of an inch beyond the mentum. At the base the rod is colorless, and its tube connects above with the membranous sack next to be described, and through this with the tube of the mentum and with the pharynx.

Attached to the edges of the sheath, next to the slit, and possibly as Mr. Chambers thinks, entirely lining the latter, and also to the corresponding edges of the tubular rod is a thin membrane (Fig. C, s). Mr. Chambers thinks this passes over the slit in the rod, making the tube of the latter complete. I have reasons to think he is mistaken, as will appear in the sequel. When not distended this membrane lies in folds (Fig. C, s); but when distended it with the rod pushes out of the sheath, so as to form with the latter a large tubular sack (Fig. B S, s) with the tubular rod (Fig. C, R) along the surface opposite the sheath. At the base this sack has a chitinous support (Fig. A, Q Q), and connects through the tube of the mentum with the pharynx, and receives the tube of the rod. It extends nearly if not quite to the end of the sheath, certainly as far as the slit in the latter extends, and is, anteriorly, imperforate.

The labial palpi (Fig. A, k, k.) like the maxillæ, are deeply grooved, and when brought close together form a tube which also has a membranous connection with the mouth opening into the pharynx.

The paraglossæ are short, leaf-like organs (Fig. A, P, P) with a hollow membranous base, which also connects with the tube of the mentum and the sack of the ligula.

When not in use the ligula, with the labial palpi and maxillæ all double back under the head, and the tongue is so retracted that it extends no further than the labial palpi. This shortening of the ligula seems to be effected by drawing the more membranous and less hairy base into the mentum.

#### HOW DO BEES TAKE LIQUIDS INTO THEIR STOMACHS?

This question, as we have seen, has received various answers. Some have thought that the nectar was drawn through a tube formed by the approximation of the ligula, the palpi and the maxillæ. Others that suction was the force and the tongue the tube. Still others have believed that the nectar was lapped up by the bees. I hope to be able to show you that all are right.

Look at the bee through a good lens (I have used Toll's one-half inch) while sipping honey containing grains of solid matter, and the fine particles will often be seen to ascend through the tube formed by bringing the maxillæ close together. We have already seen how this liquid passes to the mouth and through this into the pharynx. Or we can color some rather thin honey or syrup by aniline (I have found deep red to be the best), and while the bee is sipping this colored liquid, which it does as eagerly as though the poisonous aniline were not present, cut off its head, which, with a pair of dissecting scissors is done in an instant. Examination plainly shows the red track along the channeled maxillæ and palpi, even to the mouth, which clearly reveals the path of the liquid. These conduits are much the larger approach to the pharynx; thus we see why bees take honey so fast when they can get freely at a large quantity, and why a few days of a good basswood harvest are so fruitful.

Bees as surely take honey through the triangular rod, which is enclosed within the sheath. I have proved this in several ways as follows:

I have placed honey in fine glass tubes and behind fine wire gauze, so that the bees could just reach it with the funnel at the end of the rod. So long as they could reach it with the funnel so long would it disappear. I have held the bee in my hand, by grasping the wings, while observing it with a good lens. I would gradually withdraw it from the drop of honey, which it would sip so long as the drop was within reach of the funnel. I have in such cases seen the red axis when the bee was sipping colored syrup. Subsequent examination by dissection revealed the red liquid still in the tube of the rod, clearly showing its course in passing to the pharynx. If we place

the tongue with a drop of water on a glass slide and cover with a thin glass, and then look at it through the compound microscope, with a magnifying power of eighty diameters, we can readily see the liquid pass back and forth in the tube as we press with a pencil on the thin glass cover. As Mr. Chambers states, this tube at the base of the funnel is only one five-hundredth of an inch in diameter. We now understand why bees are so long in loading their stomachs, when gathering from small tubular flowers, as then this minute tube is the only avenue by which the bee secures the nectar. We can also well understand why they gather so much faster from some flowers than from others. In the one case they secure the liquid sweet through both the channels above described, in the other, when the honey is scarce or deep down in small tubular flowers, they can only use this microscopic tube.

We also note the admirable construction of the tongue, which permits it to probe these tiny flowers, and also see the advantage of even a little additional length in this important and wonderful organ.

I also believe that bees lap up the honey. If we spread a thin layer of honey on a glass, and permit the bees to visit it, we shall see the bees wipe it up with their ligulae. Fine drops disappear even though the funnel does not touch them. From this observation, as well as the structure of the organ—if I am right in believing that the slit in the rod opens on the surface—we can but conclude that the slit in the rod, no less than the funnel, may be the door whereby liquids pass to the tube. If Mr. Hyatt is right in thinking that the dorsal band of the rod is muscular, we can readily see from its position and the form of the rod, how the slit might be opened. If the liquid is very thick the bees are seen frequently to retract the ligula and then extend it, as if to clear the organ by scraping it between the maxillæ and palpi.

While sipping honey the bee performs a kind of respiratory movement with the abdomen. This shows that the force of suction comes partly, if not wholly, from the stomach, which organ is situated in the abdominal cavity. The tongue is also retracted and extended rhythmically while the bee is sipping. The tip passes alternately back and forth from its greatest distance from the mentum to the end of the palpi. This movement may be something analogous to swallowing.

I am not certain as to the function of the membranous sack. I have found that if I killed a bee by compressing its thorax, very soon after it commenced to sip the colored liquid, that the latter was always in the stomach but not in the sack. If I waited longer I found the sack also partially filled. This leads me to conclude that it acts as a storehouse, enabling the bee to carry a load beyond

the capacity of its stomach. It also appears glandular, when distended, so possibly it secretes an animal juice or ferment which aids in changing cane sugar into glucose or grape sugar; for we find upon analysis that pure cane sugar after passing through the stomach of the bee has partially undergone this transformation.

After the bees have sipped the colored liquid I find invariably that the tip of the tongue—the small portion where the slit in the sheath seems obscure, and where the rod seems more firmly attached to the sheath, is highly colored, as though full of liquid. Possibly the sack does not extend into this portion and the tube may be larger in this part. By a little pressure the liquid is made to pass out of this portion of the tube, either through the funnel or slit, perhaps both.

#### LENGTH OF TONGUE IN DIFFERENT RACES.

I have measured hundreds of tongues, under the microscope, with the camera lucida, and have been much interested to observe the wondrous uniformity in length where the bees were from the same colony or from the same apiary, especially if close breeding had been practiced. Tongue after tongue would show a variation of less than .025 of an inch. I have found the length of the American black bee's tongue to average about .24 of an inch in length, from the base of the mentum to the tip of the ligula. American-bred Italian bees I have found, when measured by the same scale, to have tongues .02 of an inch longer. Some bees, said to be Cyprians, but closely resembling our black bees, except that the down on the thorax was a little more yellow, I have found to possess tongues a little shorter than those of our American Italians, though the average is but very little less. I have examined bees' tongues from workers reared from two different imported Italian queens, and found that in both cases they exceeded in length those of our American-bred bees, though the difference is very slight.

In 1878 I measured the tongues of some bees, sent me for Cyprians. The bees were very yellow and beautiful. I found them to possess the longest tongues I have ever met, but there was very great variation. I had but few bees, and sent for more, which never came. I had arranged the present season for bees of the various European races, and had been promised specimens; but greatly to my regret and disappointment, the bees have failed to come, so I have to make this but a partial report.

That the added length is of practical importance I have proved as follows: Honey in a vessel covered with fine gauze was placed before Italians till they ceased to eat, because the honey was beyond reach. The vessel was then placed before black bees, which failed to reach the fluid. The vessel was then filled



and given first to the black bees which worked till the liquid was inaccessible, when it was placed before Italians. These would invariably commence to sip the honey. Again, a box one-half inch deep, without top or bottom, was covered with fine gauze having fifteen meshes to the inch. A glass was then placed in the box so inclined that while one end rested against the gauze the other was one-half inch from it. The glass was thinly spread with honey on the side next the gauze. This was placed in a hive of Italians when the glass was cleaned of honey for a distance of twenty-four meshes from the edge where the glass rested on the gauze. The black bees could only reach, and only cleaned, for nineteen meshes. Many trials gave the same result. This then shows why Italians can gather, and often do collect from flowers which fail utterly to attract the black bees. The nectar is beyond their reach.

#### CONCLUSIONS.

It would seem from the above that American-bred Italian bees have shorter tongues than those direct from Italy. It seems very probable that "Natural Selection," the very law which raised the Italians to their position of superiority, also gave to them their longer tongues. Shut up in their mountain home, a mere isolated basin, where competition must have been very excessive, nature took advantage of every favorable variation, and developed those striking excellences peculiar to the Italian. During these ages there was no kindly bee-master possessed of the intelligence sufficient to nurse the weaklings, nor any "Dollar Queen business" to stimulate indiscriminate breeding, and the weak died victims to starvation. And so we are indebted to the stern, inexorable law of nature for the incomparable breeding which wrought out such admirable results in far-famed Liguria. Unquestionably the crowded apiaries of Austria and Germany have heightened the "struggle for life," and this had a similar tendency to develop superior excellence in the European black bees. It is more than probable that the German bees of crowded Europe have longer tongues and are generally superior to the same in America, where they have long been favored with broad floral areas and comparative absence of competition. I should expect that this very law might have developed varieties of the black race which are superior to others of the same race. It is more than possible that "survival of the fittest" explains the origin of the superior varieties which are said to exist in various provinces of Europe. For the same reason we should surely expect superior excellence in the Cyprian bees. Crowded as they have been for long years or ages, in their small island home, the principal of "survival of the fittest" must have been working powerfully to weed

out the inferior and to preserve and make stronger the superior. And so the great poet has well said: "Sweet are the uses of adversity."

#### PRACTICAL CONCLUSIONS. \*

From the above considerations it seems obvious, that would we perpetuate the excellencies given us by the skilful breeding of nature, though we may not destroy all the feeble, as nature has done, we must assuredly study and observe so closely, that we shall know of a surety which are our very superior queens, and be even more careful to breed from no other. Whether care or carelessness will be most promoted by our present system I leave for you to say. But I do wish that we might have at least a few breeders with time, means, caution, skill and patience, who would work with earnest zeal to not only keep all the excellence we now have, but to augment this excellence as I am sure it may be augmented.

But if our cheap queen system is to continue, then, surely, we may well stimulate frequent importations from Italy and Cyprus, and thus hope to compensate in part for what will be lost by hasty, careless and indiscriminate breeding.

A. J. COOK.

Lansing, Mich.

The Rev. O. Clute remarked that he deemed the subject of great importance, and that the valuable experiments of Prof. Cook called for more than the usual vote of thanks. He therefore moved that a *special* vote of thanks be tendered to Prof. Cook for his valuable essay. Carried.

James Heddon, Michigan, asked Prof. Cook if other able essays could not be given, especially on the comparative power of the wings in carrying honey from long distances.

Prof. Cook answered he had often thought of doing so, but so far his attention had been wholly taken up by the tongue experiments. He had often seen Italians, but never black bees on red clover.

A. A. Winslow, Wis., stated he had often seen black bees on red clover.

Prof. Cook thought bumble bees may have torn open the honey tubes, and the black bees followed them.

Mr. Winslow explained the clover was light; but he had never seen them on rank clover.

J. Y. Detwiler, O., inquired whether dark or yellow Italians had the longest tongues.

Prof. Cook. The darker.

Rev. O. Clute, Iowa, inquired if the yellow as well as the dark had been bred for the best qualities.

Prof. Cook thought the lighter had been bred more for color than for other qualities.

The President read the following paper on

**Patents, as applied to Implements of the Apriary.**

The subject, "Patents, as applied to Implements of the Apriary," might have been stated as applied to all vocations as well. The principle remains the same, with this difference: the whole system of apicultural appliances being made up generally of insignificant items, many so small individually that, as to the gradual improvements therein we often hesitate and find ourselves asking the question, "Does it pay to patent such inventions?"

What constitutes ground for a patent is, as the statute requires, newness and novelty among other qualifications. Novelty consists in producing a new substance, or an old one in a new way, by new machinery, or a new combination of the parts of an old one operating in a peculiar, better, cheaper, or quicker method; a new mechanical employment of principles already known. But when the diligent strike upon a principle, even by mere accident, which principle leaves nothing more to be desired in that regard as an invention, such should be secured by patent claiming the essential feature, as no additional claim for improvement in that direction could be held subsequent thereto, without liability for infringement upon the original.

By an incentive to inventors, the apriary in common with some other known industries, has within the last few years achieved grand results; but should a genius desire to patent each successive step in his advancement as brought out by diligent application, shoe-leather worn out upon the tiles of the patent office or by interviewing counsel, would be a loss greater than could be gained by patenting many simple appliances of ideas suggested by fertile brains, when often the improvement can be as easily evaded by like ingenuity on the part of others, or by infringement without fear of detection.

The indifferently inclined pay tribute when they go on carelessly, allowing the wide-awakes to do their thinking, which, by the "law of compensation," allows the indolent the only alternative to submit to the more successful and enthusiastic competitors. *Excelsior!*—not conservatism—should be the aim of every apiarist, and whether this is best conserved by "patent," or upon direct business principles, is a matter to be determined by the virtue which respectively in them lies. The possession of a *white elephant* is the reflex or ghost of an ingenious apiarist, who continually is haunted by a desire to patent new ideas as developed in his intercourse with the bees, which, after a calm deliberation, frequently settles the point in his mind as to the course to pursue for a pecuniary profit or loss, by prosecuting more diligently than ever his regular vocation.

Had the movable-comb frame or the movable frame hive rested at that, without disputing about the size or shape—which at best is now most conflicting—a competence would have inured of which the conceded honorable claimant is now so sorely in need.

The honey extractor, by centrifugal force,

is the principle by which it comes in contact with other known prior inventions, for instance in the refining of sugars, by which the syrup is eliminated from the crystals; but a valid claim might have been set up by certain combinations, whereby an extraordinary remuneration would have followed.

Comb foundation—if, instead of the machine of whatever design to produce this article, the originator had obtained exclusive control in the use of said material, as artificially made for use in bee-culture, the royalty emanating thence would be of enormous magnitude.

The bee-smoker, consisting of a bellows and stove, by which the "direct-draft" patent settles it as the simplest and best, and which, upon examination, confirms all claimed for it, for it is impossible with less material or fewer elements to support the peculiar combustion necessary, for which it was designed.

The honey knife is an example of the general rule of modification: but how many would ever think of obtaining a patent thereon? The bevel edge as constructed, as offering the least resistance in uncapping combs, makes it *par excellence* the best. Thus, while millions of knives are constructed for their respective uses (which are legion), this modification for the apiarist insures the "millions in it" for the would-be patentee, which "patent applied for," if not granted, ought to be.

Unlike the long ages past, where the aparian industry remained so long dormant that, contented with the then existing evils, our fathers were prone to look no further for improvements in bee-culture; the present generation, on the contrary, promises to solve many intricate problems, and will not rest short of the goal. For instance, fertilization in confinement, and wintering bees successfully upon summer stands, will, from present indications, be thoroughly established, and that, too, within our day and generation. May he who accomplishes either fact have a generous benefit accrue therefrom, for being able to produce a desired result, within immediate control, and under ordinary climatic conditions.

No fawning sentiment, nor creed, nor cant, nor sophistry, nor hypocrisy, should be allowed to warp the judgment as to our particular aparian patents, which ought in justice to rest intrinsically upon what should be designed for them, "their own bottom;" nor should the cavalier be allowed to unjustly arraign a system which our fathers and a majority of those now living deem as most wise, by affording "the greatest good to the greatest number." The business of inventions or patents is like any other legitimate business, but it is rarely managed with that tact that ordinary business requires, because poverty too often finds lodgment with genius; though poverty be no particular discredit, it is a decided inconvenience; to add to this the invidious distinctions making patents as applied to the apriary unenviable, which, contrary to many other pursuits in life, some apiarists assail, as if all original, hard-earned ideas should be given gratuitously to the public, when often they themselves inconsistently patent their own expressions of others' ideas, or description of



others' inventions, by a mere modification of the patent law—by copyrighting! What jewels!

Let sincerity and plain-dealing distinguish the apiarist; let the law of supply and demand practically govern their relations; let not culture assimilate with the objections of cavilers whose minds are not sufficiently expanded and cultivated to comprehend why men cannot act from other than selfish motives, clear through to the end of the chapter, especially when it relates to "Patents as applied to Implements of the Apairy."

ADOLPHUS E. WENZEL.

Calliocon, Sullivan Co., N. Y.

The Secretary read the following paper, entitled

#### **Wintering Bees on Summer Stands.**

Among the variety of subjects pertaining to the science of apiculture, I think all will concede that of wintering, among the most important, if not paramount to all others.

After the disastrous winter of 1871, this subject was freely discussed at several Conventions both National and State; the loss being attributed to different causes, for which new methods were advocated as giving promise of being more successful.

In the aggregate of loss the apiarists of the United States suffered another "Waterloo" during last winter, and the questions for consideration on this subject are: the cause of, and remedies against such losses in the future. In this discussion four points claim our attention:

1st. Location of the Apiary.

2d. Preparation.

3d. Winter.

4th. Examination at close of winter.

1st. For a location, if available, I should prefer a hill-side having a northwestern exposure, as this would not only give protection against high winds, but also afford warmth sufficient to give the bees purifying flights when other locations would not. The ground should at least be sloping so as to give ample drainage; and where natural protection against high winds is not afforded, a wind-break should be made. I consider the saving of bees thereby, even in an apiary of fifty colonies, would offset the expense of a high fence, or setting a hedge.

2d. Preparation includes the time between August and November. The central combs in the hive should be examined in August, and those filled with honey more than one-third their depth from top-bar, (which is more apt to be the case with the Italians than blacks), extracted. This will give the queen an opportunity of occupying the combs with eggs, which will not only secure an abundance of young bees for wintering, but afford empty cells for the cluster, giving a warm brood-nest. I have often heard the following remark by persons losing bees: "Well, I had no idea of losing that colony of bees, the hive was so heavy with honey!"

Our experience is that hives having enough stores to carry them through until they fly freely in spring (and then fed until the flowers afford the supply), not only winter better, but give the largest swarms and the most surplus honey.

Old queens should be removed at this time. We have occasionally retained a queen during her fourth year, but as a rule do not more than three, and I think better results are obtained in an apiary worked for surplus honey, if a majority of the queens are superseded every thirty months. As soon as honey gathering ceases, the hive should be examined as to sufficiency of stores for wintering; combs of honey being supplied to the needy from those having an excess. The brood-nest should be in centre combs, and passage ways for the bees made through them. These are quickly made by pressing the claw end of a tack hammer through the comb up to half the length of the handle, turning it with the hand as it goes. This presses the wax down firm all around so that the bees are not apt to draw out the comb. These passage ways are made in the central combs below the sealed honey. Packing the hives should be done before hard freezing occurs; otherwise the full benefit of same is not secured. We pack in October.

Our attention was first called to the necessity of packing in the spring of 1869. The preceding winter was noted for extremes of temperature, going as low in Western Pennsylvania as 20° below zero. After such cold weather I noticed water dripping from bottom-board, or ice clogging the entrance of the hive; and upon examination of hives in which the bees died, found the combs mouldy, also bees between ranges of combs away from the main cluster on either side, showing that the bees died at different times. The cluster of bees expands or contracts as the temperature in the hive rises or falls, so that where no more protection than the wall of the hive is given, there is danger of bees perishing away from main cluster, when a quick fall of temperature occurs. In the fall of 1869 we packed our hives filling the covers with straw, leaving off honey boards; and having a few double-wall hives, packed them between walls. The result of the experiment was, the bees were in good condition the following spring, the combs and inside of hive being dry and free from mould. With us this decided the question as to packing hives, and for this purpose we use cut wheat straw and chaff. An acquaintance of ours packs successfully with sawdust, and our opinion is that when thoroughly dried it is equal if not superior to chaff. I pack all around the brood chamber, between the walls, leaving on top surplus honey case, the bottom of which is covered with old carpet or burlap and filled with the packing, the ventilators in ends of cap being left open, and entrance to hive contracted. I have packed bees in single wall hives for different persons with good results, by placing the hive in a box, the dimensions of which were several inches larger than the hive so as to give room for the packing.

3d. As soon as the bees are confined to the hive place a protector on the lightening board to exclude snow and wind from the entrance. I examine the entrance two or three times a month, and all dead bees are brushed into a basket with a quill feather and carried away from the apiary. Should many be found on the bottom-board, they are removed with a rake made of heavy wire,

using a piece about thirty inches long, one end of which is bent over three inches at right angles and hammered about three-eighths of an inch wide. If after long confinement to the hive I discover signs of dysentery, I place a small piece of sponge saturated with Bromo Chloralum in the entrance and treat any soiling about entrance or bottom-board with a solution of same. As snow falls it is packed around the hives, shoveling from between rows, this generally leaves the ground free from snow in front of the hives when warm enough for the bees to fly. When such an opportunity is afforded after long confinement, the protectors are removed from the entrance, also covers removed at times to allow the sun's rays directly on brood-chamber, thus lengthening time of flight. I have also placed litter of straw in front of hives. The more quiet bees are kept, after going into winter quarters, the smaller will be the consumption of honey and loss of bees; so that excepting these occasional purifying flights, they are not disturbed, care being taken never to jar the hives when working around them.

4th. As soon as the bees fly freely in spring the hives should be examined and all queenless colonies united with weak one, combs exchanged between those having an abundance of stores, and those needing them, colonies that have suffered from dysentery, the combs and bees are transferred to a clean hive giving them a comb of sealed brood from a healthy colony, at same time, if much reduced in numbers. This soon affords healthy bees, and may be the means of saving them. The hive from which the bees have been removed is scraped and treated to a solution of Bromo Chloralum.

In Western New York the bees went into winter quarters about the 1st of December, and were confined to the hive until the 9th of March. In all our experience in wintering bees, we never suffered so small a loss as during that time. They had good flights on the 9th and 10th of March, the hives being unusually populous. It became cold on the 11th, continuing so as to keep the bees confined to the hives another month. Had they been afforded flights at intervals of a week or 10 days succeeding their flights on the 9th and 10th of March, or had they been confined to the hive without any flight from 1st of December up to the 10th of April, my opinion is, there would not have been such a heavy loss of bees. I do not remember of more than two colonies being affected before the flight in March. A week afterwards the bees showed great uneasiness, and in ten days they were soiling the entrance, their power of retention was weakened, and with distended abdomens they salled out only to perish in the chilly air. This state of things continued until the 10th of April, when good flights were afforded. But how changed the condition of the bees since their March flights; comparatively few had increased in numbers, the majority having weakened and a number dead.

In conclusion I would say that with my experience in wintering bees on their summer stands, I am more successful when the following conditions are obtained from preparation or favorable conditions of temperature:

1. A prolific queen and an abundance of bees hatching in August and September.
2. Passage ways through the combs for the bees, and empty cells on central combs for the cluster.
3. Properly packed around and over the brood-chamber with ventilation at ends of cap and protection at entrance of hive.
4. That with the exception of an occasional purifying flight the bees are kept as quiet as possible.

5. That after months of confinement to the hive, the bees should have several flights at intervals of a few days, in order to preserve a healthy condition of the feces, thereby insuring the apiarist against loss by disease.

J. E. MOORE.

Byron, N. Y.

J. E. Hunter, Iowa, after four years' experience, is satisfied that cellar-wintering is the only safe plan.

James Heddon, Michigan, is satisfied it makes no difference whether the combs are filled with honey or empty; he would rather have old bees than young ones to winter over; he believed that the death of bees in the spring was almost wholly due to a disease called bee cholera. He had very little confidence in partial experiments. He had once fed 16 colonies of bees through winter on sugar and would believe that this had been very beneficial to them, but that he happened to have 17 other colonies in the same cellar which had received no sugar, and they came through equally well. He related several other instances in which conflicting results had been reached under the same method. He thought poisonous honey was the cause of bee cholera.

A. A. Winslow, Wisconsin, had met with much better success by packing with chaff for winter, and leaving on the summer stands.

E. D. Godfrey, Iowa, has wintered on summer stands for ten years, and has not lost a colony. His plan is to drive stakes around and within six or eight inches, then fill in with hay or straw, and cover over to keep rain out.

A. J. King, New York, thought wintering on the summer stands was fast becoming the most popular method, as much labor was involved in carrying bees in and out of doors, and that the jarring incident thereto was calculated to worry and alarm them.

Mr. Cheney, of Michigan, decidedly preferred a good dry cellar. He thought an insurance agent who would take risks on bees in Michigan, either in or out of doors, could do a good business. He would pay 50 cents a colony for packing and insuring on summer stands.

J. Lee Anderson, Illinois, wintered 130 colonies in the house, and lost only 1. His neighbors lost largely out doors.



Dr. Blanchard, Illinois, preferred wintering on summer stands, using for that purpose an outer box, first covering the hive with burlaps, then packing with cut straw; let them remain till warm weather in the spring, then take out the straw and let the outer box remain for summer shading.

A vote was then taken on the past method of wintering: Summer stands, 42; in doors, 50. In future, 50 will winter on summer stands and 52 in doors.

The Secretary then read the following paper on

#### Monstrosities among Bees.

The science of Apiculture has been so thoroughly studied by thousands of close observers in the past, that new discoveries in the natural history of the honey bee are now seldom made. I do not propose to offer anything entirely new on this occasion, but if I can interest you for a few moments my object shall be accomplished.

You are no doubt aware that all deformed or abnormal forms of bees are immediately cast out of the hive by the workers, and speedily perish. It is from this fact that they so often escape the observation of the busy apiarist. I was so fortunate, about a year ago, as to discover a remarkable brood just emerging from the cell. They exhibited such a variety of combinations, of both the male and worker bee, in each individual, that my first impression was that Dr. Dzierzon's theory certainly could not recover from the effect of such witnesses. The queen was a young Italian, about two months old, extra large, of fine form and light in color. The colony was a four-frame nucleus. Workers hybrids. Many of the cells had raised caps, and it was from them that the monstrosities emerged.

I will describe them:

1. Perfectly formed drones, but not larger than worker.
2. Drone-abdomen and thorax, with a worker-head.
3. Worker-abdomen and thorax, with a drone-head.
4. Drone-abdomen and thorax, with one-half of the head worker-like the other drone-like.
5. Worker-abdomen and thorax, with one-half of the head worker-like, the other drone-like.
6. One-half of the head, thorax and abdomen drone-like, the other worker-like.

They were all reared in worker cells, and there were several specimens of each kind.

I find upon research that such monstrosities were observed years ago, and carefully dissected by that celebrated entomologist, Von Siebold. He found in them a combination of sexual characters in their generative organs, therefore, called hermaphrodites. Bees are conceded to be bisexual, such a thing as true hermaphrodites among them is perhaps impossible. The development of the internal organs are singularly correlated with the peculiarities of the external. In those with the worker-abdomen, he found the seminal receptacle and ovaries present, but empty.

The sting with its vesicle and glands well developed. In those with the drone-abdomen, the male sexual organs were well developed, the testes containing spermatozooids, the ovarian organs, sting and poison apparatus existing in an imperfect state.

He ascribes the production of them to an imperfect fecundation of the ovum.

It has been established, beyond doubt, that the queen bee can control the sex of the egg at will. The eggs in the ovaries, contain a male sex-producing germ; to change the sex of the egg germ to female, the queen causes the egg to come in contact with the spermatozoa contained in a little sack, on one side of the oviduct. The spermatozoa enter through the egg shell by minute orifices called micropyle, of which there are quite a number. If the micropyle are obstructed, no filaments can pass, therefore, the egg remains, as it left the ovary, and will hatch a drone. This is why we find drones reared in worker cells. It is not a mistake of the queen as some may suppose but from imperfect eggs; a matter over which she has no control.

Mr. Darwin says it requires several spermatozoa to impregnate the egg properly; if that be true, is it not probable that if only one should enter the egg, that it has not the power of entirely changing the male-sex producing germ and thereby we have the so-called hermaphrodite.

Chattanooga, Tenn. S. C. Dodge.

Prof. Cook stated the essay was incorrect, in that the bees did not always remove the monstrosities from the hives, he having frequently found them there.

The Convention then adjourned.

#### WEDNESDAY—Morning Session.

The Convention convened at 9 a. m., President Newman in the chair.

The Committee on Nomination of Officers submitted a report, which was accepted.

On motion, Prof. Cook was unanimously instructed to cast the ballot of the Convention for T. G. Newman for President, he being the nominee of the Committee, which was done.

The President elect, in a short and felicitous speech, returned thanks for the compliment conveyed.

On motion of Prof. Cook, the Secretary was instructed to cast the ballot of the Convention for the remainder of the nominees of the Committee, and the following were announced as elected for the ensuing year:

Recording Secretary—Dr. Ehrick Parmly, New York city, N. Y.  
Corresponding Secretary—Rev. O. Clute, Iowa City, Iowa.

Treasurer—Mrs. Frances A. Dunham, Depere, Wis.  
Vice Presidents—J. R. Lee, Huntsville, Ala.

Dr. W. Hippolyte, Devall's Bluff, Ark.

C. J. Fox, San Diego, Cal.

J. L. Peabody, Denver, Col.

H. L. Jeffrey, Waterbury, Conn.

Jesse B. Watson, Vermillion, Dak.

Dr. J. M. Keyes, Iola, Fla.

Dr. J. P. H. Brown, Augusta, Ga.

E. J. Oatman, Dundee, Ill.



Rev. M. Mahin, Logansport, Ind.  
E. D. Godfrey, Red Oak, Iowa.  
D. P. Norton, Council Grove, Kan.  
N. P. Allen, Smith's Grove, Ky.  
Paul L. Viallon, Bayou Goula, La.  
J. H. Spaulding, Augusta, Maine.  
Mr. Valentine, Double Pipe Creek, Md.  
W. W. Cary, Jr., Coleraine, Mass.  
Prof. A. J. Cook, Lansing, Mich.  
Rev. J. W. McNeill, Crystal Spring, Miss.  
P. P. Collier, Benton City, Mo.  
George M. Hawley, Lincoln, Neb.  
T. B. Parker, Goldsborough, N. C.  
J. L. Hobson, Walpole, N. H.  
Prof. J. Hasbrouck, Bound Brook, N. J.  
A. King, 61 Hudson street, New York city.  
C. E. Muth, Cincinnati, O.  
D. A. Jones, Beeton, Ontario.  
W. J. Davis, Youngsville, Pa.  
S. C. Dodge, Chattanooga, Tenn.  
F. F. Collins, Dallas, Tex.  
Mr. Johnson, St. George, Utah.  
J. W. Porter, Charlottesville, Va.  
Jacob Ide, Passumpsic, Vt.  
Christopher Grimm, Jefferson, Wis.  
E. W. Hale, Wirt C. H., West Va.  
Thomas Valiquet, St. Hilaire, Quebec, Canada.

The following essay was then read, entitled:

#### Moving Bees.

The subject of moving bees is very important, though it has been over-looked or neglected by nearly all the writers on bee-culture. Quite often we desire to move our bees a few feet, or rods, and as it is the nature of bees after they have once marked the locality of the hive to return to that particular spot, even after the hive is moved away, it becomes necessary to adopt some plan that will prevent them from returning to the place from which the hive was moved and cause them to mark the new locality of the hive. Strong colonies moved a short distance at night or during a cold spell in winter have often been so weakened by the loss of bees returning to the old location that they became an easy prey to robber-bees or the ravages of the bee-moth larva.

Bees may be moved without loss if proper precautions are taken. I would recommend the following plan, which with me has been successful: Select a warm, bright day, when the bees are active; puff a little smoke into the entrance of the hive, and if the bees are on the wing, or in the field, give them time to return; thirty minutes will usually suffice; keep the bees from going out of the hive by smoking them at intervals; have a box ready large enough to cover the top of the hive; if it is a movable-frame one, remove the top; if a box or gum, invert it and place the empty box on the top, into which the bees will ascend, and proceed to knock or drum on the hive 10 to 20 minutes, or until the bees with the queen have passed up into the box; then carefully put the box, containing the bees, on or near the spot where the hive stood, raise it a little in front so that the bees on the wing can pass in; then move the hive where it is to remain permanently, and proceed to hive the bees in the old hive, as you would a new swarm. Bees moved in that manner will mark the locality of the hive.

Bees can be moved a foot or even two feet a day without loss, but it confuses them; yet, that might be the best plan if they are to be moved only a few feet.

When bees are moved a mile or more, it is not necessary to take the foregoing precautions, but care should be taken to have all

the bees in the hive; if any should be on the wing, use a little smoke and give them time to enter the hive before closing it up. If the hive has movable-frames, wire-cloth can be tacked over the entrance; if a box or log hive it should be inverted, and coarse cloth, such as coffee-sacks are made of, should be tacked over the bottom, (now the top) of the hive securely, so that no bees can pass out. If in a movable-frame hive upward ventilation should be given, by tacking wire-cloth over spaces in the honey-board, or auger holes made near the top of the hive. The number of bees and condition of the weather should control the amount of ventilation.

Early in the spring is the most favorable time for moving bees by wagon or railroads, for at that time they have but little honey and brood, and in that condition will stand the jolts and jars in transit much better than when loaded with honey and brood. If bees are moved when the combs are heavy with honey, it should be extracted and the frames secured to prevent them from moving, which can be done in a Langstroth hive by putting strips of wood one-half inch thick and the length of the end-bars of the frame between each frame at the ends, and tacking strips across the top of frames at each end.

If bees are moved in a wagon, I prefer an ordinary farm wagon, without springs; and with straw, leaves or shucks, a foot deep in the bottom to put the hives on, and to crowd between the hives, so they will not touch or move about. Box or log hives can be hauled long distances over rough roads without breaking down; the hive being inverted, the honey in moving is in the bottom and the bees gather at the top. N. P. ALLEN.

Smith's Grove, Ky.

T. F. Bingham, Michigan, observed that bees can be removed any distance at this season of the year.

Prof. Cook took issue, stating that but four weeks ago he attempted moving bees with unsatisfactory results.

Mr. Bingham explained that four weeks ago there was much brood in the hives, and the weather being warm queens were undoubtedly laying prolifically.

Mr. Heddon, Michigan, thought Mr. Bingham's covering the box induced the bees to note location anew.

Charles Dadant, Illinois. We move our bees at will, at any time of the year, any distance from one rod to miles, without loss, by giving them a slanting board in front; but after the bees have been in winter quarters they will always return to old location.

E. D. Godfrey, Iowa, and Mr. Winslow, of Wisconsin, have practiced for years Mr. Dadant's method, with satisfactory results.

G. W. Zimmermann, Ohio, has followed the same plan, substituting colored paper for boards in front of hives.

Mr. Bingham stated when bees were



gathering honey, or attending to any other usual business, they did not stop to mark location on leaving the hive.

Prof. Cook had neglected placing the board in front of hive to induce a new marking, and thought that might obviate the difficulty.

The Secretary then read the following paper relating to

#### Bee Forage in the South.

The extent and abundance of the honey-producing flora of a country, other conditions being equal, must determine whether apiculture can be successfully and profitably prosecuted in that locality.

In my remarks upon bee forage, I shall confine myself to that portion of the Southern States lying south of a parallel of thirty-six degrees north. Geographically considered, this portion of the United States is more varied and diversified in climate, soil and productions, than any other. In the mountainous regions of North Carolina, upper Georgia, and Tennessee, the climate is cool and temperate, and there nearly every plant and fruit that is grown in the higher latitudes can be cultivated to perfection. As we proceed southward the climate becomes more mild and genial, until we arrive near the Gulf-coast where we approach the "home of the orange."

Hence we perceive that the diversified climate of the Southern States admits of an immense variety of honey-producing plants.

To form a correct estimate of the value of many of our reputed nectariferous plants would be a very difficult task. In order to arrive at correct conclusions as to the worth of a flower to secrete honey, it requires no little intelligence and accuracy of observation. Most of beginners are too prone to accept for truth the nursery rhyme :

"How doth the little busy bee  
Improve each shining hour,  
And gather honey all the day  
From every opening flower."

The simple fact of seeing a bee upon a flower does not prove that it is gathering one particle of honey. It is bee nature to hunt for sweets; and in times of scarcity it will visit flowers that it would not touch under more favorable circumstances. Hence many of the favorable opinions of this or that plant for honey are often based upon very hasty and inaccurate conclusions.

To calculate the value of a plant for honey, we must have a sufficient quantity of the same within the immediate range of our bees in order to enable them to work to an advantage. The seasons—the atmospheric conditions—must not be lost sight of. Too much rain may wash the saccharine secretion away; a protracted drought may cause its suspension; while a hot, dry atmosphere may evaporate the secretion before the bees can gather it.

When there are many forage plants in

bloom at the same time, the bees are mostly seen on the ones yielding the most honey; while the rest, although secreting some nectar, would be nearly neglected.

Therefore the honey-value of some of the trees, shrubs, and plants that I shall catalogue as bee forage, must necessarily be more or less conjectural.

For the sake of system, as well as convenience, I shall divide the honey-flora into spring, summer and autumn forage. The time and duration of bloom are noted, in the most of cases, for the latitude of Augusta, Ga. North of this point the time will be later, and as we go south the time will be earlier.

The earliest-blooming of our spring forage plants is the Alder (*alnus*), which commences about the middle of January and lasts, some seasons, till the middle of February. It yields little or no honey, but during its time of bloom, its pollen-laden catkins are covered with bees. The amount of pollen that this plant affords is immense; and it comes in a time when breeding should be most encouraged. If a slight digression is here allowable, I will remark that pollen is the "staff of life" to the brood, and if our hives are deficient in it, and the bees cannot procure it, or a substitute, brood-rearing cannot properly proceed.

In some sections of the south, particularly on light, sandy soils, there may be found some Yellow Jasmine, (*gelsemium sempervirens*). As its flowers possess very decided toxic properties, it is not a very desirable plant to have within the range of one's bees. It blooms after the Alder. While our native black bees are very seldom seen working upon it, the Italians, in some seasons, will work upon it quite briskly. I am inclined to think, from close observation, that it is mostly pollen they gather from it, though in some seasons it does yield some honey.

I have more particularly named this plant because of its poisonous effects upon young Italian bees immediately after taking their first meal. For the past nine years I have observed, commencing with the opening of the Yellow Jasmine flowers, a very fatal disease attacking the young bees and continuing until the cessation of the bloom. The malady would then cease as quickly as it came. The symptoms of the poisoning are: the abdomen becomes very much distended, and the bee acts as though intoxicated. There is great loss of muscular power. The bee, unless too far gone, slowly crawls out of the hive and very soon expires. When examined, the abdomen seems to be distended with a sort of serous-looking fluid. The deaths in twenty-four hours, in strong stocks with much hatching brood, may amount to one-half pint, often much more.

While my observations and conclusions have been verified by dozens of intelligent bee-keepers, breeding pure Italians in localities

where the Gelsemium abounds, it is still to be hoped that further observations may be kept up by southern apiarists who are favorably situated for making investigations.

The wild plum (in some sections known as the hog plum) usually commences to bloom the last of February and lasts for two or three weeks. This is peculiarly a southern tree, and grows to great perfection nearly everywhere. Whole acres are often covered with it, forming a dense thicket, thus affording the bees rich pasture.

In March we have the peach, the apple, (which continues into April) the mock orange, or ever green wild cherry (*Cerasus Carolinensis*), the huckleberry, strawberry, and a few other plants of minor consideration. Further south they have the tyty, the saw palmetto and the orange; all good forage plants.

The willow, wild cherry, hawthorn, blackberries, raspberries, locust, holly, and tulip tree (*Liriodendron tulipifera*) bloom in April. The two latter are most valuable for honey. The holly blooms for about two weeks—the height of its flowering is about the first week in May. The tulip tree blooms for three weeks. This is the poplar tree of the south.

In May we have the black gum (*Nyssa multiflora*) and the persimmon; both excellent for forage. The blooms of these trees are dioecious, that is, the male flower is found on one plant and the female flower on another. Bees are very seldom seen working on the female tree, while on the male bloom they work in a continuous swarm.

In May, also, blooms the bay (*Magnolia glauca*). This tree flowers for at least one month, and extends into June. It affords some of our best and most abundant forage. The *Magnolia grandiflora*, linden and Chinaberry tree (*Melia azedarach*) bloom also in May. The magnolia blooms for six weeks; the linden from six to ten days, and the china tree for two weeks.

Sourwood, the varnish tree (*Sterculia planifolia*), Japan privet (*Ligustrum*), and a few other plants of less note embrace the principal forage in June.

I have now enumerated the chief honey-producing plants that go to make up our spring honey-harvest. Take one season with another, our bees commence to lay up surplus about the last of April and continue until the first or middle of June. After this date but little honey is gathered until the fall honey-harvest commences. The bulk of our spring honey is gathered from the holly, persimmon, black gum, bay and sourwood. Of course, some seasons there is considerable honey gathered from other sources. The color of the honey is usually a little dark but of excellent flavor.

There is comparatively little forage during the summer months of July and August. The button bush (*Cephaelanthus occidentalis*), Su-

mach, *Asclepias tuberosa* (known as pleurisy root and butterfly weed), and *Yucca alnifolia*, (Spanish bayonet), are the most important. The cotton plant, which generally commences to bloom about the first of July, yields largely of pollen, but very little honey. Sumach is a rich melliferous plant, but the warm, dry atmosphere evaporates the secretion very rapidly, so that the bees can only work on it very early in the morning while the dew is on. The Spanish bayonet plant no doubt furnishes some nectar. It generally swarms with flies, various sorts of wild bees, and now and then a few honey-bees will visit it.

Bees are generally able to gather sufficient stores during July and August to keep up brood-rearing and the strength of the colony, until the blooming of the autumn forage.

The first to bloom of the fall pasturage is the *Chrysopsis graminifolia* of Nuttall; a perennial, composite. This plant is often taken for a species of dog-fennel, but it is altogether distinct. It is indigenous to the south from Florida to North Carolina, which seems to be its northern limit; it is a yellow-flowering weed that commences to bloom in August and keeps on till frost. In fact, in some seasons, its blooms can be seen in July. Fifteen or twenty years ago it was only to be seen in patches here and there over the country; but it has spread until now all the road sides and commons look, during the bloom of this weed, as though covered with a yellow mantle, and even the air, at times, becomes filled with the pungent yet not unpleasant odor of its flowers. It produces large quantities of honey of a yellow, bitter, disagreeable taste. For breeding and wintering it answers all the purposes of a better article, but is not suitable for market.

After the appearance of the golden rod and the asters, in September, bees are very rarely seen upon it. If it is desired to keep this bitter honey from that of the melliferous plants just named, it should be extracted upon the appearance of the bloom of the solidago and the asters. But all such operations, like extracting at this season of the year, require good judgment and care, otherwise we might leave our bees in poor condition for the winter.

The golden rod and the asters bloom till killed by frost. I esteem both these plants very highly for their honey-producing qualities. In some seasons I have hives filled with aster honey alone.

I am satisfied that it will never pay to cultivate plants in our southern country exclusively for the honey. I have tried nearly all the so-called bee-plants, such as borage, mignonette, alyssum, Rocky Mountain bee-plant, etc., etc., but have never been able to see any good results. To be profitable, a plant must have other uses besides honey.

Both the red and white clover do well on our clay and alluvial soils that are sufficiently



rich for their growth, but it is folly to expect success on light, sandy uplands. I have seen as fine clover grow in South Carolina and Georgia as ever did in Pennsylvania and Maryland; and I am glad to say that more attention is being paid to their cultivation. Alsike clover and melilot can not be successfully grown. First, it is very difficult to get even a fair stand; and, secondly, even after a passable stand is obtained, the plants are killed during our long, dry summers.

Buckwheat grows well, but it either fails to secrete honey during the summer months, or the honey is dissipated before the bees can gather it. If sown the latter part of August, so as to bloom in September, it comes in competition with plants that are richer in honey, and the bees, in most of cases, refuse to work on it.

Catnip, horse or goat-mint, mustard, etc., when cultivated, yield much honey. The first two of these plants might profitably be grown in all out-of-the-way places.

In laying out our pleasure grounds, and in planting shade trees, it is advisable to keep an eye to utility as well as to ornament. Many of the most valuable and ornamental shade trees are also excellent for bee forage. I can especially recommend the *Pawlonia imperialis*, catalpa, china berry tree (*melia azedarach*) *sterculia platanifolia*, or varnish tree, and mimosa.

Most of these beautiful trees are natives of Japan, a country to which America is greatly indebted for a large number of her most highly ornamental trees and plants.

In some seasons, in many localities in the south, there is found on the leaves of various trees and shrubs, a saccharine formation called honey-dew. Without discussing any of the theories advanced to account for this secretion or excretion, I simply refer to it, and state that the amount of honey obtained sometimes from this source is very great. Its quality is inferior.

Before I close this paper, I must refer to the wanton destruction of melliferous trees and shrubs in nearly every portion of the southern country. In some sections this has been carried to such an extent as to preclude the possibility of surplus honey in apiaries that formerly yielded large returns. It behoves every bee-keeper to give attention to the preservation of honey-producing trees and plants as much as possible. DR. J. P. H. BROWN.

Augusta, Ga.

The following papers were then read on

#### Foul-Brood—its Dangers and its Cure.

Foul-brood has for years, been a terror to bee-keepers in the old world, and was transplanted to America by importation. It has made fearful progress in the South and Southwest, also in the Eastern States and California, and bids fair to be a serious

stumbling block to bee-culture, if not checked in time. I have answered so many letters in regard to this matter that I could not well select a better subject for this article.

Our greatest danger lies in ignoring or hiding the trouble, as under such a policy, nobody's bees are safe in a neighborhood where one hive is afflicted. Robbing bees may spread the disease anywhere. A hive, afflicted with foul-brood, cleaned out by robbing bees and left on the stand, will keep a whole neighborhood infected for years. We may imagine, therefore, the mischief which will follow a carelessness of this sort.

Foul-brood does not originate in a healthy colony, but is a disease of itself, of a sporadic nature, which does not affect the lives of old bees, but is carried along on their legs or other parts of their body into the hive, and wherever it comes in contact with larvae, it finds a fertile soil. The larvae die and foul-brood begins its growth.

Spores or micrococcus develop and are carried all over the hive and combs by the bees. Wherever one of those parts, which are too small to be discovered with the naked eye, happens to drop into a brood cell containing larvae, a new start is given to the disease. The dead larvae decay and turn fast into a tough, yellow, bad smelling mass of aropy nature, distributing micrococcus all the time until all the brood is affected. It often happens that larvae take the disease just before the cells are capped. We recognize those capped cells afterwards, by their flat appearance and a little perforation in the middle. Bees perhaps getting impatient about the hatching of their young, make the opening and quit in disgust upon discovering the bad odor arising from within.

The air of a foul-broody hive is so disgusting that I imagined I could smell it when walking past. The dead larvae, turned into a yellowish-brown, dry up and stick, mummy-like, in the lower corner of the cells. Being of the same color as the comb, they are often undiscovered, and although the combs are disinfected thoroughly, as the bee-keeper thinks, they will bring death and desolation to the hive wherever introduced. As soon as an egg is laid in one of those cells and the larvae begins to develop, the mummy softens up and the disease takes its start anew.

There is said to be, also, a harmless foul-brood which makes its appearance in a weak colony and disappears again when the bees become populous. I never made the acquaintance of this kind, and believe it to be an entirely different disease. As a proof, I offer the following:

Having my apiary on a roof and wearing out the latter, I concluded one summer to put on a new one. This was 10 or 12 years ago. I knew how to keep a hive of bees closed up safely for a day, of course, if it was in July and the weather warm. So we went to work. At noon, when the honey commenced to run down the tin spouts, into the gutter, I knew what I had done; but at 5 p.m. every stand occupied its old place. About  $\frac{3}{4}$  or more of my bees were killed. Every comb was broken down, and every bee killed in some of the hives. The un-

hatched brood in the capped cells were smothered. For two weeks I devoted every spare hour (and more) to the straightening up of combs and cleaning out hives and several sympathizing friends lent me their helping hands, picking the dead out of the cells, etc. The dead larvae became putrid, and I was alarmed at the bad odor when opening a hive. Several colonies, unable to bear the stench, swarmed out. I hived them again, gave them new combs, in clean hives, contracted the space to suit the colonies, fed them up, and when winter commenced, every colony was in good condition. Every comb was cleaned out by the bees (*i. e.* the cleaning finished) and no foul-brood anywhere.

About four years ago, however, in the fall, I bought a few colonies of bees from a neighbor who himself had bought them from a party in Kentucky. I had noticed nothing wrong, but the next spring one of them was foul-broody and before I was aware of it, several more colonies were afflicted. I knew the disease from its description in the *German Bee Journal*, and I knew also the discovery of Dr. Schœnfeld, that foul-brood was of vegetable growth and destroyed by Salicylic acid, which was harmless to animal life, and even the tender larvae of a bee, if properly applied. I knew furthermore the discovery of Mr. Emil Hilbert (one of our most enthusiastic and energetic German bee-keepers), and the manner of application. It consisted of

50 grammes of crystal salicylic acid.  
400 grammes of pure spirits.

One drop of this mixture added to 1 grammie of distilled water was the proportion and ready for application. It had to be applied lukewarm in order to keep the acid dissolved. Pure spirits was used to dissolve the Salicylic acid, and while the latter is harmless to animal life, an overdose of the former will kill the larvae. My druggist, therefore, made up for me the following solution, which is essentially the same as the above, but entirely harmless to larvae and which may be used at any temperature.

128 gr. of salicylic acid.  
128 gr. of soda borax.  
16 ounces of distilled water.

I purchased a couple of good atomizers of which there are a number of different kinds to be had in our drug stores and proceeded to disinfect. One frame after another was taken out and every part of it and the comb was covered with a fine spray of the medicine. Every bee received a ducking. After being done with the combs and bees, I disinfected every part of the inside and front of the hive, the alighting board and the part in front of and around it. It was wonderful to observe the clean sweep the bees made of their diseased and disinfected larvae during the next two days. This progress of disinfection repeated 5 or 6 times in a thorough and careful manner and every other day, will cure a foul-broody colony. If however, one of the mummies remains in one of the cells or a particle of the micrococcus is yet hid in a crevice or corner of the hive or frames, foul-brood will make its appearance again, just as soon as a bee will run over it, take it along accidentally and drop it in one of the brood cells.

Salicylic acid will cure foul-brood without a doubt, and it is not a hard matter to cure a foul-broody hive. But, while you are applying the medicine to one hive, visiting bees from others will take the disease home with them and before you know it a dozen or more of your hives are infected. This is especially the case before and after the honey harvest when bees naturally are inclined to rob. With all your precaution, you will have a job on hand. Three years ago I had cured quite a number of foul-broody colonies which had been infected in the above described manner. I had no signs of the disease the following year, and a large honey harvest. In the spring of last year I purchased a number of colonies and placed one on a plank, on which I had two years previous dropped some of the larvae of an infected hive, which had stood above. Those larvae had been swept away and the place disinfected every time. Still some of the micrococcus appeared to have been hid among the fissures or fibers of the wood, attached itself to the feet of the bees and infected that colony. It was one of the strongest colonies I had. The bees being black and standing in an odd place, I used its brood-combs to strengthen up other colonies. On the last comb I noticed foul-brood that had just taken a fair start. An examination showed that every comb taken out before had been affected likewise. Those hives in which I had placed them, were infected, of course. My energy was taxed considerably that summer and my honey crop damaged. I cured fourteen or fifteen hives and, when, in the fall, on account of rebuilding the house, my bees were moved to the country I marked one hive as doubtful. Foul-brood was gloriously developed again in about a month from that time. It goes against the grain of a bee-keeper to kill a bee, but my patience was exhausted. Brimstone was resorted to, combs and frames were burned and hive washed out with salicylic acid for future use. This was last fall.

In the early part of last spring, I kept a close watch over my bees and found, in one hive the larvae of a few cells just at the point of turning yellow. A few of those mummies had been overlooked the previous season and I noticed their effect in due time to prevent trouble. I cut out the diseased cells, gave combs, bees and hive a dose of the medicine as described above and fed the colony with honey to which was added a small portion of salicylic acid. The remedy was complete.

I was not so fortunate with a strong colony I discovered a month later. In this case the disease was already developed too far, and having a vivid recollection of my troubles last year and three years ago, I considered the brimstone pit the best remedy. To this I proceeded after dark so that no bee survived to tell the tale. This I admit is cruel, but it is a radical remedy and will be adopted by me in the future in every case where the disease is far advanced.

I admire the patience and endurance of Mr. Hilbert. To him and Dr. Schœnfeld we owe a great deal of gratitude, as without their aid we should neither have the means of curing foul-brood nor of preventing the



spreading of the disease. For two seasons I have tried faithfully to imitate the virtues of friend Hilbert and not without success, and the only consolation I have are the words of a sympathizing friend and fellow-sufferer: "It makes us all the better bee-keepers."

The maxim, "Time is money" is realized by most of us. I for one, can better afford to buy 5 or more colonies of bees than cure one, after foul-brood is in an advanced state because a number of other hives are almost sure to be infected while handling the one. We cannot be too particular to destroy every particle of comb, frame and hive belonging to a foul-broody colony. In order to prevent the disease, it is also very essential to add a small portion of salicylic acid to all of our feeding honey or syrups, in fall or spring.

Another item may be worth mentioning. After I had subjected the majority of my combs to a treatment of salicylic acid a great many times, I despaired of my ability to destroy the above mentioned mummies and concluded to render the combs into wax. But to my surprise, I found the yield of wax entirely out of proportion. It appeared as if the acid had destroyed the wax. Hence, the combs and frames were burned to ashes and scattered to the four winds of heaven.

I hope that none of our friends unacquainted with this loathsome disease will ever be troubled with it, but as the possibility exists that any one of us may at any time make such an unpleasant discovery in his apiary, it will be prudent to mark all such articles appearing on the matter or to have them handy in case of any emergency.

Cincinnati, O. CHAS. F. MUTH.

#### Foul-Brood.

Every intelligent bee-keeper is interested in all that pertains to the health and prosperity of his apiary. As foul-brood is one of the many hindrances to successful bee-keeping, it may be profitable to spend a few moments in exchange of ideas upon one of the most loathsome calamities that can attack our aparies.

An exhaustive treatise on the subject would be too lengthy for this occasion, and only some of the more salient points will be noticed.

The first thing to attract the attention of the careful bee-keeper, should foul-brood make its appearance, will be a few sunken cells, with small perforations in the caps, scattered over the brood combs. These cells contain the putrid remains of the unhatched brood. If these cells are found in large numbers, the disease may be considered to be in an advanced stage. If in addition to this, a large portion of the uncapped larvae is found dead; the disease is in its malignant stage. This disease may be in a hive in a mild form for a long time, doing no serious harm, and may possibly die out entirely; but at another time the conditions may favor the rapid growth and spread of the infection, and it becomes malignant and contagious.

The researches of Dr. Preuss and others lead to the opinion that the disease is caused by a microscopic fungus cryptococ-

eus alveario. These fungi are very minute, round and dust-like, and the Doctor estimates that a single cell may contain forty billions of the fungi. With this knowledge of the infection; the minuteness and penetrating power of its particles, its rapid spread and growth, must all be taken into account when we attempt a cure.

The chemical laboratory opens to us its thousand remedies, and with its aid we feel confident to attack the myriad hosts of the enemy. Herr Lambrecht, a chemist of Germany, was one of the first to claim successful treatment.

Among the various remedies which I have tried, nothing has given me so great satisfaction as the hyposulphite of soda, suggested by Dr. Abbe, of Massachusetts. The Doctor recommends one ounce of hyposulphite of soda to half a pint of rain-water, to be used with an atomizer, spraying the combs, hive, and bees, and washing out every infected cell.

Chloride of soda (salt) made into a strong brine works about as well, but does not deodorize like the hyposulphite of soda.

Salicylic acid has been used in Germany, and tried in this country with varying results. The author of this remedy says that the combs must be gone over at least eight times, opening every cell with sunken cap, and the acid carefully applied. The same amount of labor is required if chloride of soda is used. How discouraging if, as often happens, after all the bee-keeper's care, some of these billions of fungi have not been reached by the remedy, some of the infected pollen remains, and he has his work to do over again. Must we, after all our chemical research and scientific attainments, go back to Quinby or Alley for the best system?

To eradicate the disease with chemical treatment involves the possibility of having to repeat the work many times. In my opinion, Quinby's method with the addition of comb-foundation, is the more practical, less laborious, more sure and economical.

Should foul-brood again visit my apiary. I should without hesitation shake the bees off the combs into a clean box or hive, and leave them there until all the honey taken with them had been worked up into comb, I should also have ready a new hive, supplied with comb-foundation (wired foundation preferred), would then shake the bees into this hive, making sure that not a vestige of the old hive, comb, or honey, could be reached by the bees. I should have constantly on my mind that one cell of foul-brood may contain forty billions of seed, and that any one seed may reproduce the disease.

The utmost care should be taken that no other bees from the woods or neighbors' yards get to the comb or honey, as the disease may be readily spread by them. The comb should be immediately melted into wax to destroy the fungi that might remain in it. The honey, if brought to the boiling point, can with safety be fed to the bees. The above method I have tried with complete success.

If the disease should make its appearance in one colony only in the apiary, the temptation would be strong to apply the fire test



of Alley, and reduce the whole, hive, bees, combs and honey, to ashes, and thus quickly end the strife. Without thoroughness there is no safety; with it, the disease may be subdued and conquered.

East Saginaw, Mich. L. C. WHITING.

Mr. Wilcox, of Wisconsin, wanted to know if there was any first cause for foul brood, and if so, what?

Dr. Parmly, of New York, stated that he had two colonies affected by it.

D. A. Jones, Ontario, stated he had had 300 colonies affected by foul brood. He had soaked combs for twelve hours in salicylic acid, but without any benefit. He would advise any one having foul brood in his apiary to burn his bees, combs, and everything coming in contact with it. Foul brood originated in his apiary by the breaking down of combs in a hive in being moved; the brood in the combs being chilled, allowed to remain and becoming putrid in the combs. From this hive the contagion spread to the adjoining hives. He put salicylic acid in the honey being consumed by the bees, without deriving any benefit. He found boiling the honey would kill the fungi. If Mr. Muth will send him acid that will cure foul brood and not kill the bees, he would give him \$50.

Mr. Pammell, LaCrosse, Wis., had two cases of foul brood.

Mr. Jones thought sultry, foggy, damp atmosphere would engender foul brood.

Mr. Collins, Texas, had had foul brood in his apiary for four years in succession, which has ruined his apiary each season. He has found that nothing but fire will cure it.

T. F. Bingham, Michigan, had foul brood in his apiary in New York, and after various experiments and the loss of 25 colonies, concluded fire was the only radical cure.

Mr. Heddon, Michigan, never had any experience with it; but should his apiary become afflicted with it, he would immediately apply fire, as a duty to his bee-keeping neighbors.

Mr. Bingham would burn hives and bees.

Mr. Jones would boil the hives and use them again. He now has 125 hives in use from which the bees were killed, and there were not now any bad results.

D. M. Ketcham, New York, inquired if the bees had access to salt.

Mr. Jones. Yes.

Mr. Schofield. No.

Mr. Collins. Yes.

Dr. Parmly. Yes; the whole Atlantic Ocean.

Mr. Heddon. I do not believe bees use salt; it is sal ammoniac they want.

Mr. Rice. If you will put water and salt in an elevated trough, your bees will not trouble the chicken pens or pumps.

The Rev. W. F. Clarke then read his essay on

#### The Bee of the Future.

This paper is intended to treat its topic in plain, practical, common-sense fashion; rather than theoretically and scientifically. There are three views current in regard to the subject. The first, is that of the conservatives, who think we have reached the *ultima thule*, beyond which no farther improvement of the honey-bee is practicable. They took this ground at the advent of the Italians, and though forced to abandon it for a time, have resumed it. They discourage further importation, and are content to "let well alone." The second view is that of the progressives, who while fully recognizing the advances of the past, believe that the limit of improvement has not yet been reached, but that even our best strains of Italian bees are capable of being made better. The third view is that of the enthusiasts, I had almost said fanatic; who belittle all the achievements of the past, and indulge in the wildest dreams, as to the bee of the future. In their visions, they see a majestic insect with wings large and swift as Gabriel's; a tongue long as that of Xantippe; and an atlas-power of honey-carrying. My present object is, mainly, to prick some of the big bubbles which these dreamers are ever and anon sending aloft in the expanse of apiculture.

I have said they belittle what has been done in the past. Here is the language held by one of them in regard to the bee-keepers of America. "Bee-raising has been carried on mainly with the view of getting at the present time, the most dollars out of the stock, with little regard to its future condition; in fact, there has been no system of breeding pursued. Bees have been brought from Italy, and, by carelessness, lack of foresight, or ignorance, the fixed types there established have failed to appear in their progeny bred in this country." The same writer contrasts the assiduous care of "the people of the Italian peninsula," who, he says, "began the improvement of their bees by selection more than nineteen hundred years ago", with the alleged carelessness of American bee-breeders. It would be folly to deny that there are careless bee-breeders on this continent, but I verily believe, there has been more attention paid to this matter in America during the past fifteen years, than in Italy during the past nineteen hundred years. Prof. Cook is no doubt right when he says: "I believe the superiority of Italians is not owing to careful breeding, but to the law of 'natural selection', shut up in a limited area, and walled in by mountains, there was a struggle for life, and only the fittest could sur-



vive, so all but the most vigorous would starve; hence there was developed an active race with longer tongues." It is much to be regretted, that, just when the superiority of American bee-keeping has been recognized with honor by the masters of European apiculture, it should suffer unjust disparagement by those of our own fraternity.

The writer just quoted, and who seems to have drawn all Michigan after him, has fixed his affections on *apis dorsata* as the bee of the future. So far as I am aware I have no prejudice against any bee, or any man. But I am free to own that I am not enamoured with *apis dorsata*.

According to the statements of Edward Cori, and others, this insect, commonly known as "the great bee of Java," is at least twice the size of our black bee. Mr. Cori says of it, "the sting is likely twice as long and stout, and the poison-sac twice as large as that of our native black bee." He adds: "Since the effect of the sting of the common bee on persons not accustomed to it is so great, what must at first be that of *apis dorsata*?" But this is not all. He says, further, "with the warm climate and luxuriant flora of Java, the poison of this bee may be of a stronger nature."

It is no wonder the Javanese are not great bee-keepers when they have such a formidable insect to deal with, considering that their "full dress" is a cotton shirt! Should this become the bee of the future we shall need, not as now, a veil and gloves merely, but a coat of mail for our apiary garb. But this bee is a great winder, as well as a great stinger. It angrily pursues in large numbers and to long distances, the person who disturbs them. Running back and forth, hiding in bushes, and such like devices, are of no avail. It will pursue you like fate, and fix you like destiny.

Dearly beloved brethren, pray postpone the introduction of this terrible bee until I have died comfortably in my bed. Having been nearly stung to death by an amiable Italian, what chance for my life could I possibly have with "the great bee of Java?" But this charming insect has other peculiarities. It has a fashion of settling high. The swarms invariably cluster on the topmost branches of the loftiest trees. They also build their combs in a horizontal, instead of a perpendicular manner. No doubt Yankee ingenuity might be able to adapt hives to this eccentric habit, but fancy the dire effect of a cross. We have overcome the tendency to "higgledy-piggledy" comb-building, but a mix of horizontal and perpendicular, would be "confusion worse confounded."

The one redeeming quality of this bee seems to be, the length of its proboscis. Cori says, it is nearly twice as long as that of a common bee. I admit fully the value of this feature. In fact one of the chief things to be desired in the bee of the future, is length of

tongue or proboscis. But I would exhaust all endeavors to secure this by judicious breeding and careful selection, before importing a race of bees, whose multiplication would justify, if not demand, governmental interference for the protection of the non-bee-keeping part of the community.

Lest my opposition to the *apis dorsata* should be resolved wholly into scare, I will add, that we have no evidence whatever as to its honey-gathering industry and skill. We are told that its honey is "said to be very fine." So we know is that of our own bees. All except the ignoramuses who suppose that bees make honey, are quite aware that the quality of this product depends on the flowers, and not on the bees. If anything is to be done by way of experiment with *apis dorsata*, I would suggest that "some bee-keeper, not too old, strong, wise, of indomitable energy," and very thick-skinned, should emigrate to the island of Java, carry on an apiary there for a few years, and report progress from time to time to the annual session of this Association.

How is the bee of the future to be obtained? Prof. Cook says: "Aim to have your queens reproduce themselves in fecundity, and in ability to generate the most vigorous and energetic workers, then breed for amiability and beauty."

I believe, nay, I am sure, that our breeders, if encouraged, can produce bees that will eclipse our best Italians of to-day. I endorse that, "There is only one way in which our bee-breeders can be encouraged, and that is by a willingness to pay good prices for good queens." The dollar queen business, like the use of glucose, must be abandoned. Both queen and honey adulteration belong to the same category. Our veteran authority, Mr. Langstroth, truly says: "We want the best race of bees, or the best cross in the world." I apprehend that bee-stock is ruled by the same laws that govern other stock.

No breed accidentally discovered in some far-away part of the world has ever been imported and adopted just as it was. Certain races that, either by natural selection, or judicious pairing, have developed a high standard of excellence, have been taken as the foundation; then the best specimens have been chosen and bred from. This is the history of the thoroughbred and other horse tribes; of Shorthorn and other cattle; of Merino, Cotswold, Leicester, and Southdown sheep; the improved breeds of hogs; and the more valuable varieties of poultry.

By all means, let us import as we have been doing, only with more care: breeding only from the choicest and finest specimens. Undesirable variations and inferior types will occur, but just as other breeders make beef of their poorer cattle, mutton of their worser sheep, pork of their second-rate pigs, and pot-birds of their poultry that do not reach the

standard of excellence; in like manner let us remorselessly sacrifice all but A 1 queens. By so doing, at the same time selecting first-class drones; breeding in full colonies; at the most favorable season of the year; sparing neither time nor pains; we shall ultimately succeed in producing the bee of the future, *apis Americana*, which will satisfy our own ideal, and "beat the world."

Guelph, Ont.

W. F. CLARKE.

Prof. Cook wished to correct an erroneous impression conveyed in the essay in regard to *apis dorsata*.

Rev. Mr. Clarke stated the implication did not refer to Prof. Cook.

Dr. Parmly stated he had been interested in the cultivation of the Egyptian bee; but after possession of them, and a thorough trial, he had been interested in getting rid of them.

Rev. O. Clute, for the author, read

#### The Next Progressive Step.

At the last meeting of the Michigan State Bee-Keepers' Association the following resolutions were unanimously passed:

*Whereas*, We feel the deep importance of the subject so ably presented by our brother member, Mr. Frank Benton, of Detroit, of some plan to secure the testing of the various species or races of exotic bees, and,

*Whereas*, We feel that in the importation of some of those bees there are very great possibilities of rapid advancement; therefore,

*Resolved*, That President Cheney, Frank Benton and H. M. Roop, be appointed a committee to take the matter into consideration, and if possible, to devise some practicable scheme whereby we may obtain information of the various species of foreign bees, and if desirable, may secure their importation into our State and apriaries; and,

*Resolved*, That the committee bring the same subject before the National Convention at its next meeting.

I am not the chairman of the said committee, but as I have received no word from that gentleman, I propose to try to accomplish a portion of the committee's work by presenting for your consideration a statement of the views entertained, after some years of experience with Cyprian bees, by prominent bee-culturists of Europe, so far as the latter have expressed themselves in the aparian journals of the continent. Doubtless I have not seen all that has been printed on this subject, yet the authorities

shall quote are such as are known to have had experience in cultivating this race of bees, and whose reputation is too well assured for any to doubt their having used care and having made great efforts to arrive at the truth. And as I cannot be present to take part in your discussions, you will certainly permit me a few comments and words of explanation as I proceed. My esteemed friend, Prof. A. J. Cook, (do not interrupt me by saying he is not a European bee-culturist, for more than once I have seen his name in the apicultural journals of sunny Italy, and they spoke of him as though he were one of them), has ably presented the scientific aspect of this subject and

therefore I only need to keep in view what has been realized practically.

The credit of importing the Cyprian bees from the Island of Cyprus into Europe, belongs conjointly to Count Kolowrat, of Hroby, and Herr Eduard Cori, Director of Chancellery, Brux, Bohemia. For a great many years these gentlemen have been engaged in importing and testing various races of bees. They have tried the Italians, Carniolan, Herzegovinian, Dalmatian, Smyrnian and, finally in 1866, they obtained the first colony of Cyprian bees. The latter were received just at the beginning of winter and did not survive until the next season. Another colony was obtained in 1872, and two more in 1874, since when other importations have been made. Apiaries of hundreds of colonies of Cyprians are now in existence in Austria; in Germany there are also large Cyprian apiaries, and the race is attracting much attention in adjoining lands as well as on this side of the water. The opinions expressed by foreign journals are, in the main, very strongly in their favor, and I am fully persuaded that our next progressive step is to introduce their cultivation extensively into this country.

A brief description of the Cyprians may not be amiss to many: The bodies of the bees are strong, slim, and wasp-like, the abdomen being quite pointed. They are to be classed, decidedly, among the yellow races; their whole bodies have generally a more golden or orange color than those of the Italians, the most distinguishing marks being that the under side of the abdomen is a pronounced yellow or orange (while the Italian is generally dark especially toward the tip), the first two segments are orange-yellow the whole width and when viewed toward the light seem somewhat transparent, the tip of the abdomen is shining black, the back of the thorax presents a deep orange-colored shield with a reddish, changeable border; they have a hairy coat which is light yellow and covers something more than half the breadth of each ring. These features serve to distinguish them very readily from Italians.

The Cyprian queens are perceptibly smaller than other queen-bees, their bodies being slender, in fact delicate appearing, very tapering, but long; they have four rings colored, generally darker orange-yellow than those of the worker-bees; the thorax and the segments of the abdomen are more than half covered with a yellow, extremely tender coat of hair, resembling dust, and through this appears the glistening black color of the tip of the abdomen.

The drones of the Cyprian race are strong, and have long, apparently stretched-out bodies; they have the thorax, as well as the first ring under the wings, (which has a thick coat of dirty-yellowish, coarse hair), colored dark orange-yellow inclining to a changeable



red; the remaining rings are also reddish-yellow. On the sides of the abdomen in each of rings a black dot is always present. This is universally the case with the Cyprian drones, though in the color of the other portions of the body they vary, inclining, however, to show considerable orange or yellow.

From this description, for which I am mainly indebted to Chancellor Cori, experienced bee-breeders can see at once that there is no difficulty in distinguishing Cyprians from Italians, and, furthermore, that the former are much more beautiful than the latter.

In regard to the qualities of the Cyprians, Herr Cori says: "This race exceeds all those thus far described. The bees commence brood-rearing earlier, have an active disposition, fly when the weather is cool, are extraordinarily prolific, and are diligent in honey-gathering. As regards their disposition to sting it may be said that it is not greater nor less than that of the Italians or of other races." The testimony of this man is well worth considering, for, holding a high position under the Bohemian government, he has for many years devoted a great deal of his time to the elevation of his favorite pursuit—bee-culture, in his native land, and has become recognized in his locality as an authority in such matters. The estimate placed upon his work there is indicated by the following extract from the report of a bee-convention and exhibition held in Tetschen, Bohemia, in 1876, at which were present many of the prominent apiculturists of Europe: "The highest state award, consisting of a silver medal, was bestowed upon Herr Eduard Cori, Director of Chancellory, Bruex, Bohemia, for his Cyprian bees, but as he had previously received the same honor, he declined, whereupon the medal was given to Herrn P. Franz Goerner, of Politz, for Cyprian bees." The second state prize was awarded to an exhibitor of Italian bees. The highest award of the Bohemian Society itself was given to Adolf Hauffe, for Cyprian bees.

Count Kolowrat, of Hroby, and Chancellor Cori were, as already stated, associated in importing the Cyprians. The former has the model apiary of Bohemia, and has done a great deal for the bee-interests of his country. Rev. J. Stahala, a noted Austrian bee-keeper, says: "No one could think of reproaching Count Kolowrat with the faintest idea of speculation in the matter." It is well known the Count has not sold, nor does he ever sell Cyprian bees, but he has given a great many daughters of his imported Cyprian queens to his particular friends or to aparian societies. In 1875 he wrote as follows:

"The Cyprians appear to be no particular friends to drones. At the second revision of my colonies in the spring during the latter part of May, I found in sixty-two colonies no ripe drone brood, and in only a few was any drone brood to be found, while from hives

containing bees of other races drones had been flying for eight days. How long it was before my original imported Cyprian queen placed eggs in a drone comb, hung in the middle of the brood-nest! Rather than comply with my earnest wish she allowed empty combs, usually so odious to the bees, to be placed between the sheets of brood, and yet this colony was very strong, the weather quite favorable, and I fed it more diligently than any of the others. Such a similar occurrence in all of my Cyprian stocks indicate that it is a peculiarity of this race to commence drone-rearing much later than others do. On the other hand, the killing of the drones takes place from two to three weeks later than with our other bees but the making away with the drones then goes on rapidly; they were slaughtered unmercifully in a short time, with the exception of a few which appeared to have been pardoned, for I noticed during favorable weather in November and December some of these dandies flying in and out of all my Cyprian stocks without being harmed in the least by the workers. Indeed, we met with individual drones in February in colonies in good order and even those possessing good young queens. I believe, therefore, that I am not mistaken in assuming that a further peculiarity of this race is the wintering of individual drones. I found in none of my Cyprian stocks too great a multitude of drones; on the contrary, in comparison with other races, there were rather less, than more. In the collecting of honey the Cyprians are very diligent; they appear to be discreet in the occupation of the ready combs with brood and honey, and only after that to devote themselves with full zeal to the building of new combs. They begin the sealing of honey earlier than do other races of bees."

The best proof that can be adduced to show that the Cyprians have sustained the good reputation early given them by the Count, is found in the fact that from time to time, since the above was written, he has imported more from Cyprus.

One of the well-known and often-quoted bee-raisers of Northern Germany is Herr C. J. H. Gravenhorst, of Brunswick, not a breeder of queens for sale, but an extensive honey-producer, whose sensible article in the old numbers of the AMERICAN BEE JOURNAL form quite a fund of information. He says himself, in an article which I translated for the AMERICAN BEE JOURNAL, Sept., 1877: "After trying various races and concluding that the Italian was the best, I felt not the least inclination to procure and cultivate still another race." However, on the recommendation of some of his aparian friends, he procured, in 1874, two Cyprian queens, and after three years' experience with the breed reported as follows:

"The colony with the imported queen was

especially diligent, gave a large return, and with the remainder of the stocks, was in good condition for winter. The wintering and development during the next spring left nothing more to be wished for.

"After having carefully observed the Cyprian bee—pure as well as hybrid—I have come to the following conclusions regarding the same:

"1. The diligence of the Cyprian is at least equal to the Italians; indeed, as regards economy within the hive, the former have the preference, because they are less inclined to build drone-comb. The same peculiarity is noticeable also with the hybrids.

"2. In their purity they are certainly more beautiful than the handsomest Italians. Those who visited my apiary were always much surprised as strong stocks filled with these beautiful bees were opened, and masses of the insects rolled out so peaceably.

"3. When rightly handled, they are neither more nor less inclined to sting than the Italians.

"Without doubt, Count Kolowrat, as well as Chancellor Cori, are deserving of great credit for importing this race of bees."

In another place the same writer remarks:

"It is a well-known fact that the most of the Italian colonies do not winter as well as black bees, and very often suffer by spring dwindling. This is not the case with the Cyprian bee. I have reared in three years many a Cyprian queen (not to sell with a few bees, but for my own use, and to sell in full Cyprian colonies in the spring), and every such colony wintered well, coming out strong in the spring.

"The Cyprian bee will not swarm as much as the Italian, and does not build as much drone-comb as the latter.

"I will not say the Cyprians work better than Italians, but it is certain my Cyprian colonies yielded me every year the greatest honey harvest. As to stings, it may be stated, they used them neither more nor less than the Italians."

Herr Dathe, the author of the very practical *Lehrbuch*, says: "The Cyprians are more inclined to gather honey than to swarm; however, they are not as gentle as the Italians and are often so cross that they cannot be controlled by means of tobacco-smoke, resembling in this respect the Egyptians." Mr Dathe is very largely engaged in rearing and selling Italian bees, having, after a good many years' advertising, succeeded in building up a large trade. Who wouldn't get vexed when tobacco-smoke is puffed into his face? I admit I get very ugly when the filthy stuff is puffed into mine.

There seems to be two parties as regards the temperament of the Cyprians. Some say they are quite gentle bees, others that they are very ugly—being almost unmanageable. This

of itself would lead us to think that through some mishap the latter had been handling hybrid bees, which are well known as great hands to sting, and indeed, we find a large number of bee-keepers testifying that it is only when hybridizing has taken place that bees of Cyprian blood are cross.

Herr Guenther, of Gispersleben, Thuringia, is another noted and extensive breeder of Italian bees, who says the Cyprians are very diligent and prolific, but says they are exceedingly cross.

Herr Gaerner, who received the medal mentioned before, regards them as exceedingly good-natured, prolific and diligent, and says they have but slight inclination to build drone-comb.

The man who has become so famous through his remedy for foul brood and his great success in feeding milk and eggs for stimulative purposes, Herr Hilbert, of Maciejerro, Pomerania, says the pure-blood Cyprians are as docile as the Italians, and attributes any great disposition to sting to an admixture with the exceedingly ugly Smyrnians, which were largely kept by Count Kolowrat at Hroby, before the Cyprians were imported. Mr. Hilbert does not simply place them on the same plane with the Italians, but believes that they excel the Italians. He says they are more prudent about flying out in the spring of the year; and that as regards their disposition to defend themselves and their courage they excel all other races of bees.

Dr. A. Pollman states that he has no complaint to make regarding their disposition to sting, but that he could not unite them with other bees.

Herr Anton Lorenz writes: "The Cyprian bee is diligent—where there is a chance to rob; this proves its diligence, which we do not wish to disparage in the least, but its crossness exceeds all bounds. As some praise its good disposition, while others bring forward its inclination to sting, are we not to conclude that the race is not pure or not of the same sort, whether this be, as Herr Hilbert thinks, because some have Smyrnan blood in them, or because there are two kinds of bees on the Island of Cyprus, one of which is decidedly ugly."

Herr Adolf Hauffe, a teacher, the first man to introduce Italian bees into Saxony, (having obtained an Italian queen from Dr. Dzierzon in July 1852), said, in August 1877, in an article published in the *Bienenvater*:

"In September of last year I exhibited, at the general convention of the bee-culturists of Bohemia, four Cyprian colonies, and I have found that when the usual work of the Cyprian bees in the hive, or their passing back and forth in front, be disturbed, they sting no more than the bees of any other race—especially the Italians.

"Late in the summer of 1856, when the



mercury stood at 67° F., a hybrid Italian colony swarmed. The bees were decidedly beautiful yellow bees, yet in hiving them I was stung in such a fearful manner that I can scarcely compare it with any stinging I have ever received from black bees. The same peculiarity of disposition is noticeable as regards the Cyprians. They lose somewhat of their gentleness only when hybridized, and then take on the stinging disposition of our native bees, the latter even appearing so much the more marked because this handsomely-colored Cyprian is more highly organized. My experience agrees exactly with that of Herrn Goerner (mentioned before) and I have only to add that, as is the case with every other race, the disposition to sting only appears when hybridizing takes place. These hybrids are by no means to be despised though, since, if moderately strong, they constitute generally very good honey-gatherers."

I cannot close this article without mentioning first the statements made in a recent number of "*Der Bienenvater*," of Vienna, by Rev. Johann Stahala, Olein, near Olmuetz, Austria. As this valuable essay has been translated by Mr. Julius Hoffman and published in the August number of the *Bee-Keepers Exchange*, I will only present a few of the important points, translating for myself from the copy I have at hand. Mr. Stahala commences by stating that for two years he has been devoting his attention to the Cyprians, keeping from 70 colonies upwards, then he writes: "The Cyprian bee is similar to the Italian, but it has many peculiarities which distinguish it clearly from the Italian." After this follows a description of the bee, which agrees closely with that given by Chancellor Cori, five years ago, and then he continues in the following manner:

"Its increase in the spring is extraordinary—such an increase as is not to be found with native or Italian bees; although more prolific than the natives it does not seem more inclined to swarm than they, if one can judge of it by the past two seasons.

"The Cyprians produce more honey, just for the reason that their colonies are stronger when the harvest comes.

"The tendency to rob is even more pronounced than with the Italians, because the impulse to gather is stronger.

"In comparison with the Italians they are much stronger in numbers in the autumn, which gives greater probability of good wintering.

"Cyprian queens commence the deposition of drone eggs later than do the Italians.

"Finally, in reference to its proclivity for stinging, mentioned by some, I would state that, after my experience with the Cyprian bee, treated as it ought to be, I do not think it is more inclined to sting than the Italian. I will not, however, deny that it is more easily irri-

tated than is the Italian; yet here it is to be observed that when from any cause a colony becomes aroused, it suffices to leave it in quiet for a couple of hours, whereupon it will be found quiet and manageable. Smoke and water only produce greater irritation. The rule is: *Tout par douceur, rien par force.* (Everything by gentleness, nothing by force.)"

He adds: "Wishing to express my opinion in a few words, I say that Count Kolowrat had excellent reasons when, in the past year, he said, so far as he could see, the Cyprian race is the most productive. I agree thoroughly in his opinion."

Mr. Stahala concludes by stating that "the importers of the Cyprian bees are worthy the gratitude of all apiculturists that have, or shall have, them in their apiaries."

In a series of articles entitled, "The Bees of the Island of Cyprus," which I translated from the German of Chancellor Cori, for volume IV. of *The Bee-keeper's Magazine*, will be found much additional information on this subject, and one point there spoken of I cannot forbear mentioning here. After alluding to the lack of uniformity among the progeny of impurely mated Italian or Smyrniæ queens, Mr. Cori says: "It did not result so with the Cyprian race; the daughters of the original queens, even in case they had mated with black drones always produced yellow, double-ringed workers quite uniform in appearance. \* \* \* That, notwithstanding their certain mating with black drones, these queens, without exception, produced always yellow worker-bees as progeny, indicates that the characteristics of the Cyprian race are not only so thoroughly established, as not to succumb to the influence of the black drones, but to predominate greatly; it indicates, too, that the animal nobility of the Cyprian race, if I may so express myself, is, in comparison with that of the native black bees, much purer and greatly higher. It is this one quality of the Cyprians which, indeed, no other publicly known race possesses, that makes them appear to be a particularly valuable and really precious acquisition for the purpose of improving other races of bees."

Rev. Mr. Berry, of England, who wrote, in 1824, the history of the Short-horn breed of cattle, announced in a prize essay before the Royal Agricultural Society, this principle: "That parent casts the influence that has the longest line of ancestors, selected and bred on account of certain characteristics, which have become so fixed as to influence the progeny." This principle, so universally accepted by stock-breeders of the present time, no doubt applies as well to bees as to cattle, and holds true equally well whether the selection has been controlled by the hand of man or been merely natural. Applying the principle we see why the Cyprian bees, having reached a high degree of development through ages of

natural selection, should be able to stamp their characteristics on the progeny produced by crossing with another race—one less highly developed.

I must repeat, that I fully believe our next progressive step is to introduce and commence the dissemination of the beautiful, valuable bees of Cyprus. I have presented you with the views of the prominent apiculturists who have tested these bees on a large scale and for a number of years—some as many as seven years, and you see they are very generally agreed on all points but one, and that the majority report favorably regarding that point, while from our own experience with Italians we can easily understand how such a diversity of opinion might exist when in reality there existed no serious objection to the race of bees.

Perhaps we cannot, as that enthusiastic German, Herr von Natzmer, suggested to his countrymen, "annex Cyprus," yet I think when American bee-culturists fully realize how great is the benefit likely to result from the introduction of this race of bees, they will not be slow in turning to account all practical means at hand to aid in the work.

Lansing, Mich. FRANK BENTON.

Mr. Rice said his neighbors had procured some of the Cyprians from Mr. King, and his inquiries from time to time had convinced him they were very cross, and not in favor with his neighbors; but Mr. King may give further light on the subject.

Mr. Hulman, Indiana, thought Cyprian bees were better and handsomer than the Italians, but worse in disposition.

Charles Dadant, Illinois, doubted there being any pure Cyprian bees in this country. Only two Cyprian queens had yet been brought here.

D. A. Jones, Ontario, suggested that the members of the Society take measures to get some pure Cyprians imported. He was desirous to head a list of members of the Society who would agree to take enough queens to make it pay for some one to import them direct from the Island of Cyprus.

President Newman stated arrangements had been perfected to import pure Cyprians through Mr. Pometta, of Swiss-Italy. Several gentlemen pledged themselves to take one or more Cyprian queens next season, if assured of their purity.

Prof. Cook remarked that as Mr. Pometta had promised Mr. Newman to go to the island of Cyprus in the spring and procure queens, no other efforts were now necessary.

The matter was then laid on the table till Mr. King (who was not then in) should be able to make some explanation as to his Cyprian queens.

The Secretary read the following paper:

#### **Wintering Bees, Theoretically and Practically Considered.**

Another year has rolled away since we last exchanged our views at the National Convention at New York; but in the short space of one year many changes have been wrought; many lessons learned and many sorrows borne. Another season of rest and of toil of our busy bees has passed along the panorama of time, and its successes and reverses are now recorded on the page of history. Another severe winter has laid lifeless many thousand colonies of our lively insects that were gaily humming at the last National Bee Convention. Bee-keepers who counted their colonies by hundreds last fall, could in the spring find life only in a few solitary hives. The millions of busy workers that were so full of vigor and activity, had all succumbed to the hideous monster-death. And ever since, speculation has been rife finding a cause for this high carnage of nival.

Various causes have been assigned for this dreadful malady: Too few young bees in the fall, bad honey, too much honey, improper ventilation, extreme cold, and long confinement.

All these theories are somewhat aged, and the two latter, in my judgment, destroy more bees than all the rest combined. Bees can endure very severe cold for a short time; but when cold after cold spell follows, and continues for weeks and even months, unless bees have the best protection, it tells upon their condition and dysentery ends the case. You may say, those wintered in-doors do not feel such effects. I say they do. The long continued cold affects the electricity of the atmosphere, and in some way—perhaps unknown to man—other changes take place and our bees suffer. In proof of this theory, I cite the numberless colonies of bees that perished the past winter, that were properly housed. If it was not an atmospheric effect, what was it?

In the by-gone days of scientific bee-culture, various plans for successful wintering had been devised; cellar wintering; wintering on stand or in bee-shed with plenty of air; hiding them in caves and burying in the earth; wintering under glass, and at last the impracticable and wild plan of summering North and wintering South, which sunk beneath its own weight of impossibilities at once.

Amusing cases also occur, for example: When a man uses a quilt and chaff covering to pass away moisture, and places a tarred paper direct on the quilt! What good does the chaff do in that case? He might as well have covered his quilts with a solid board, and a cake of ice would just as well answer them as chaff. Let us use reason and common sense with bees as we do in our other work, and they will fare better. Let us apply principles that are well understood, and we will secure the result desired.

Imagine yourself on a cold winter-night denuded of your clothing and stored away in a wooden box nearly air-tight, would not the moisture emanating from your body condense and form frost on the box, and



would you not suffer extreme cold? But one says: "I ventilate my hives." All right, ventilate the box in which you are put to sleep, and how much colder do you get. This is the condition of bees in single wall hives on summer stands. In the cellar the case is somewhat different; but the air is damp and gaseous with the seeds of disease lurking in every corner.

Now change the scene, and imagine yourself closely surrounded on a cold night with some dry porous substance full of dead air spaces, that would allow moisture to escape insensibly and retain the warmth generated, and see how comfortable. This is why we use the proper kind of covering for our beds in winter, and can we not apply this same principle to our bees? Bees live on liquid food and consequently they throw off considerable moisture, both from the food and air which they breathe. We must get rid of this moisture and retain the warmth they generate. Direct upward ventilation will not do this, as the warmth escapes with the moisture, and without upward ventilation the moisture will condense and form ice, hence we must use a porous covering so as not to conduct the heat.

The following conditions are absolutely necessary for successful winter and spring management: 1. Abundance of bees; 2. A good queen; 3. Plenty of good sealed honey; 4. A frame of the proper size and shape; 5. Proper number of combs; 6. Passage-ways for the bees to pass from one side of brood-chamber to the other; 7. Protection for bees so as to keep dry and warm, and not feel sudden changes of temperature.

A goodly number of bees are necessary to produce the requisite warmth. A small colony cannot generate enough warmth in the hive during a cold spell in winter, and will suffer with the best protection. A good, vigorous queen, capable of laying at a maximum rate is needed to keep up the desired strength of the colony and for vigorous spring-breeding. From 30 to 40 pounds of honey should be in the combs above and rear-ward of the cluster the first of October; less would do to winter, but spring breeding would certainly be retarded. If bees have an abundance of sealed honey during spring, breeding goes on apace, whether the weather is favorable for honey gathering or not. A colony having only enough to barely winter, has but little brood when the weather opens in spring.

The size and shape of frame has much to do with successful wintering. A square comb will not do well as the honey is too much scattered, unless the frame is small like the "American," and then we must use too many combs. A comb twice as high as long is good for winter, but will not do for surplus. If we use more combs than the bees can cover at the end they cluster and the chances are that the colony will suffer considerably and in many cases starve.

Bees must have protection from sudden changes of temperature and be well guarded against cold and the collection of moisture within the hive. If this is done, bees will be comfortable and will not fly out until the air is sufficiently warm for them to return, and we can bid adieu to dysentery and "spring dwindling."

My system of winter management is very simple and easy. As much depends upon the domicile in which our pets are kept, I will first give a brief description of the hive I use. This consists of a hive or brood-chamber formed from the brood-frames and two side boards to which surplus receptacles can be added at pleasure and an outer case or house. Near the front end of the floor or stand is nailed crosswise a board 9 inches high and 18 inches long, for the frames to rest upon at the front end. Under the lower edge of this board is the entrance for the bees. The portico is attached to the front side of this supporting board. The house rests upon the stand; the rear end of the brood-frames rest on the floor. The ends of my frames are close fitting; top and bottom open. In winter the brood-frames are in the center of the floor, having a space of four inches between the sides and ends of frames and walls of house or case. The size of brood-frames 13x19 inches outside, giving me a comb 18 inches from front to rear, and about 10 $\frac{1}{2}$  inches from top to bottom. By using this size frame, the bees have the sealed honey always above and rearward of the cluster—the warmest parts of the hive. As the honey in the fore part of the combs is eaten, the cluster gradually moves back. Bees cannot move from one side of the brood-chamber to the other on to new combs, in cold weather; they invariably chill. In this way many colonies are lost in hives using 8 or 9 frames. In each comb passage-holes are cut about four inches below the top-bar. If the combs are well filled with sealed honey, six frames are enough—I never use more than seven; for medium colonies five frames are ample, if well filled. In this way the bees never change and vacate combs. Across top-bars I lay three or four strips of wood  $\frac{1}{2}$  inch square, to prevent the quilt from resting flat on the frames. This leaves a passage-way across the top of frames. Over the whole a woolen quilt is spread somewhat larger than the top of the brood-chamber, and extends down at sides and ends; this attracts moisture by capillary attraction. The space of four inches between the brood-chamber and sides of the house is then filled with wheat chaff or fine cut straw, and 7 inches of chaff put on top of quilt, well pressed down. This completely absorbs the moisture and retains the heat.

The entrance to the brood-chamber is contracted to about one-half inch in width, and the portico nearly closed with the large portico slides, the entrances not matching, one being at the right side of portico and the other at the left, thus preventing cold or snow from entering direct.

With this system I have now wintered six successive seasons and have not lost a colony either in winter or by "spring dwindling."

H. H. FLICK.

Lavansville, Somerset Co., Pa.

The above essay was followed by the Secretary reading the following paper from Prof. J. Wilkinson, Baltimore:

#### **Sub-Earth Ventilation for Wintering.**

At the suggestion of several bee-keepers to whom I mentioned my views of the essential characteristics of a Bee-Wintering House, and explained how

said characteristics may be best secured, I have prepared plans, detail drawings and specifications, which will intelligibly illustrate and explain my method of constructing, tempering and ventilating such a structure, in a manner to superlatively adapt it to all its purposes,—a consummation so long and so diligently sought in all honey-producing countries, yet never before attained. I will enumerate what I assume to be the essential requisites of the structure for which we are to furnish plans, etc., that it may be seen that all are embraced.

By cataloguing the characteristics to be supplied, we will arrange them in the order of their relative importance.

The essential characteristics of a bee-wintering house are :

1. Perfect ventilation.
2. Perfect quietude.
3. A proper temperature.
4. A uniform temperature.
5. A proper hygrometric condition.
6. Absolute darkness.
7. Simplicity and economy of construction.
8. Durability.
9. Economy of labor and materials in all manipulation pertaining to managing the stock and to operating the house.

The first essential is secured by the conjunctive use of sub-earth ventilation and ice. By sub-earth ventilation we can supply any required volume of air, superlatively purified, sufficiently dried, perpetually changed and uniformly tempered to about 50° Farenheit.

But we assume that a temperature of 50° is not as desirable and economical as 40° or 45° will be found, hence we have supplied the ice adjunct, so arranged that air transmitted by a subterranean air duct, may, (the whole volume supplied, or any required portion of it), be automatically passed through the entire contents of an ice house ere it is admitted to the bee room.

By this arrangement it will be obvious to all that the consumption of ice and the labor and care requisite in the arrangement of the tempering and ventilation will be reduced to the minimum.

The ice is handled but once, i.e. in storing, in which manipulation there is no waste and when the valves in the ducts are adjusted (a work of but a few minutes) the temperature for which they are set, anywhere from 30° to 50° will be maintained within a degree or two, perpetually and entirely automatically, except the nominal cost for fuel and labor to maintain a small sluggish fire in a stove, in the base of the heated exhaust shaft. For heating the exhaust shaft, wood or coal may be used, though the latter is preferable.

The second essential, i.e. quietude, is secured by isolating the bee-room and by the insulation used in the walls and roof, consisting of five close air chambers, produced by diaphragms of concrete felt in the walls and roof, by which sound is thoroughly intercepted, as well as heat.

The third, fourth and fifth essentials are all secured in conjunction with the unique ventilation and tempering described, i.e. the proper and uniform temperature, and a thorough drying of the air admitted to the building, are all fully secured by means of the conjunctive use of ice and sub-earth ventilation, an achievement which challenges the admiration of all philosophic minds.

The sixth characteristic, or absolute darkness, is positively secured, for there is not a window in the house, and but one door opening, and that is furnished by inner and outer doors, closely packed, and there are to be two thicknesses of boards in each door, with a sheet of carpet felt between the boards, by which heat and sound is intercepted.

That the seventh essential are fully secured, i.e. simplicity and economy of construction, suffice it to say, that there is not to be a mortise or a tenon in the frame—not a window frame, but one door frame, no stairs, not a brick or a stone in the structure, except in the chimney, and not a dollar expended in decoration.

With regard to the eighth characteristic, desirability of the structure, it will be seen by careful inspection of the plans and specifications, that although the foundations are of wood, they are thoroughly protected against the agents of decay, by a strong and effective mode of flushing out the air chamber, the walls at will, with pure dry air, at 50 degrees, thus keeping the materials so dry and cool that decay is impossible.

Additional protection is added by sheathing the exterior of the foundations with corrugated galvanized iron, so placed that no water can possibly come to the wood, and the corrugations in the iron form a contiguous succession of perpendicular, ventilating tubes on the exterior face of the foundation, all of which connect with a drain, filled with screened gravel under the foundation, and said drain connects

with a wall of screened gravel on each side of them, which gravel walls extend from bottom to top of the foundations, and that under the building connects with an air chamber which extends under the entire building, and said chamber connects with the heated exhaust shaft, thus conjunctively constituting the most efficient ventilation and tempering protection of the entire walls of the structure from decay that can be desired.

The ventilation of a bee house, as illustrated in design number 12, is simply perfect, and by means of the plurality of close chambers of confined air in the walls, the temperature of the building is under entire control.

Universal failure in controlling the temperature of bee-houses has attended all attempts by bee-keepers that I have seen, and it is mainly attributable to a want of a proper understanding of the subject of insulation, without which, failure is inevitable, even with an air supply as perfect as that furnished by sub-earth air ducts, of which the world acknowledges the writer the original inventor and patented in the United States.

Sub-earth ventilation has been patented in Prussia and is being introduced there, but not with the degree of success that I have attained in this country.

I have obtained a copy of the Prussian patent letters and had them translated, and from the drawings and specifications it is very evident that the patentees lack a knowledge of the principles on which success entirely depends, and the attainment of which, simple as it appears, occasioned me many years of diligent study, and numerous expensive experiments; but I feel that I am well rewarded for all the expenditure of time and money, for sub-earth ventilation has no rival, and is acknowledged by the ablest ventilating engineers in the world, to be a peerless system of ventilation, and its value in the arts, as well as for ventilating human habitations, is literally inestimable. I emphatically assert that it is impossible to make a success of wintering bees in close, unventilated cellars, or to hold the temperature of such a cellar, stocked with bees for a period of 4 to 5 months even as low as 50 degrees.

I also assert that if it is attempted to ventilate and to temper properly a cellar by admitting the exterior air directly at whatever its natural temperature may be, no amount of care and attention, even with the use of ice, can secure anything like a uniform temperature of 45 to 50 degrees, nor is it practicable to prevent the injurious accumulation of carbonic acid gas in a cellar, unless it is drained out by gravitation from the bottom of the cellar, or is exhausted by the method adopted in my system.

All who carefully study the plans and specifications for design 12, will see that the ninth characteristic viz.: economy of labor and materials in all manipulation pertaining to the management of the stock, and to operating the house, is very marked, and that nothing is wanting; but, while the detail of the construction and the directions for the management of the house are very simple, failure may result from the non-observance of what may appear to the novice entirely unimportant, hence a faithful observance of all is urged, that full success may be obtained.

I know of no other method of constructing a bee-wintering house that will possess all the essential requisites of such a structure, fully and entirely, than that which I have described and illustrated in the plans and specifications of design number 12, which I respectfully submit for the inspection of all interested, and on which I invite the careful study and the most severe criticism, and I hope to see the opinions of the members who examine said plans, whether favorable or adverse, embraced in the report of this meeting, that those who were so unfortunate as to be unable to attend, may have the benefit of all your interesting deliberations, discussions and exhibits, which I frankly admit has been the sweetest and most interesting mental feast in which I ever participated, and I am forced to the conclusion that the votaries of no other art, on either continent, will realize the degree of profit from sub-earth ventilation, that apiarists will.

It supplies numerous essentials in a bee-wintering house and fills desiderate conditions, to attain which have ever baffled the combined intelligence and efforts of the most intelligent apiarists of the world.

J. WILKINSON.

Prof. Cook stated sub-earth ventilation had been practiced with success for several years at Lansing, Mich.

Mr. Rice, Illinois, suggested Mr. Wilkinson was not a practical bee-keeper, and he (Mr. Rice) would like to know



how he came to the conclusion his plan was practicable.

Mr. Clement, of Iowa, said he wanted nothing better than a properly-packed double-wall hive on the summer stand.

Mr. Heddon, Michigan, found the matter of light in a cellar made but little difference. He thought the disasters in wintering mainly attributable to the same cause—bad food. He thinks the honey becomes infested with a parasite, which creates the so-called dysentery and causes the death of the bees.

F. W. Chapman, Illinois, wanted to know how Mr. Heddon accounted for some colonies perishing and others alongside suffering but little.

Mr. Heddon thought the bees had not all gathered food from the same source, and cited some instances in support of his theory. The fact that the disease is not uniformly found is due to the other fact that the micro-coecus fungus is not equally distributed. Some bees found the nectar that was infected, others did not. Some years ago he wintered 39 colonies, all from his home apiary but one, which was brought from four miles in the country. All were prepared alike, but only three survived the winter, and one of them was the colony from the country.

C. S. Schofield, Indiana, inquired if Mr. Chapman had old or young queens.

Mr. Chapman. Mostly or all young and prolific queens.

Mr. Rice, Illinois, packed with leaves in a shed, with a loss of four colonies. He called upon Mr. Ellerton to explain his method, who, he said, had lost none for years.

Mr. Ellerton, Illinois, said he put his hives on scantling four inches high, then packed between, behind and over them with straw, and placed a board in front to shield them from storm and sunshine. He lost none out of forty colonies thus protected. Four left outside perished.

Mr. Rice thought this knocked Mr. Heddon's theory in the head.

Mr. Jones, Ontario, being called up, said he wintered 300 colonies without loss. He extracts the unripe honey in the fall, and feeds with granulated sugar. He breeds till late, and fills each hive with all the bees it will hold; winters in a bee-house, and uses only a cotton blanket over the frames, keeping the temperature at 42° to 45°; to winter satisfactorily he wants strong colonies and mostly young bees; leaves 20 to 30 lbs honey in each hive, but feeds till late frost; gives no flight in winter. Is not fully satisfied out-door wintering, with proper packing, is not as good, but the saving in honey consumed

will more than pay for the house. Has used sub-earth ventilation with success.

Mr. Heddon thanked Mr. Jones for proving his theory, in regard to bad honey, to be correct.

#### Afternoon Session.

Convention resumed regular order of business, Prof. Cook in the chair.

Communication was received from J. Y. Detweiler, delegate from Northwestern Ohio Association, inquiring if the North American Bee-Keepers' Convention for 1878 had any connection with the American Institute Fair.

Rev. O. Clute, Iowa, said that he supposed the inquiry was instigated by some party who had a private axe to grind, and therefore moved to lay the communication on the table. Carried unanimously.

F. W. Chapman, Illinois, Chairman of the Committee on Dissection and Analysis of President's Address, submitted a report recommending that the Society take some decided action to render assistance to Rev. L. L. Langstroth, the amount raised to be placed in the hands of the President for immediate remittance to the recipient. As to the adulteration of honey, they believed that by the earnest efforts of the honey producers the matter will regulate itself. They believed the matter of creating a home demand for honey was only secondary to the production of it, and a more general endeavor on the part of apiarists to introduce it into every home was earnestly recommended. In relation to that portion of the address relative to railroad tariffs on aparian supplies and products, the committee recommended the matter to be placed in the hands of the Executive Committee with power to act. The report was accepted and adopted.

Rev. O. Clute moved a committee of one be appointed to solicit contributions for Rev. L. L. Langstroth, which was carried, and Mr. Clute was appointed said committee.

The subscription amounted to \$153.50.

F. W. Chapman, Illinois, moved the adoption of a resolution, requesting commercial reporters of newspapers to use the words "extracted honey," instead of "strained honey." Carried.

Rev. W. F. Clarke, Canada, Chairman of Committee on Report of Representative to Europe, reported the following resolutions, which were adopted unanimously.

*Resolved*, That this Association has listened with much pleasure to President Newman's report of his trip to Europe, and

hereby expresses its high appreciation of the able and successful manner in which he has represented the interests of American apiculture at the Honey Shows and Aparian meetings of the Old World. It heartily approves of the efforts he has made to disseminate broad views as to the cheap production and enlarged consumption of honey, and thereby aided in securing a larger market for this important product. In view of the fact that President Newman's tour was wholly at his own expense, the special thanks of this Association are due, and are hereby tendered, to him for the eminent service he has performed.

*Resolved.* That this Association rejoices in the cordial and enthusiastic reception accorded to President Newman by the apicultural societies and leading bee-masters in Britain and on the European continent, trusting that the harmonious feeling evinced may always be cherished by the bee-keepers of the world towards each other. This Association hopes that the friendly visit which has been made, will ere long be returned by some one or more of prominent apiculturists of Europe, to whom it will be our pride and pleasure to extend as hearty a welcome as that given to our Representative.

*Resolved.* That a copy of these resolutions be sent by the Corresponding Secretary to the apicultural societies of Europe visited by our Representative.

A. J. King, of New York, read a paper entitled "Humanity to the Bees." Mr. King spoke of several methods of inhumanity practiced by some apiarists, and believed that a law should be enacted punishing persons who are guilty of inhuman practices with bees.

The Rev. O. Clute, of Iowa, read a paper on

#### Increasing the Demand for Honey.

The fact that within a few years honey has fallen very much in price has alarmed not a few producers. They are almost disposed to give up their profession, because of a fear that prices will fall so low that a living cannot be made. But compare the prices paid for honey now and ten or twelve years ago, with the prices of flour, meat, tea, coffee, cotton cloth, and many other articles, and I think it will be seen that honey has held its own very well indeed. The price of honey now compared with its price ten years ago is, I think, larger than the price of most real estate now, compared with its price ten years ago. If honey will procure for its producer just as many of the comforts of life now as it would procure ten years ago, its price in reality has not fallen at all. It is just as valuable now as formerly, for it brings just as much value in exchange.

Instead of alarm at low prices, and a rapid retreat from the business, honey-producers should labor to bring their products to wider recognition, to increased consumption, to greater demand. Honey is beautiful, healthy, delicious. Nearly all persons like it. Show them that its price is such that they can afford to buy, and they will buy in increasing quantities. The taste,

and the habit of buying, once acquired, will continue, and will spread among others, until honey will become as general an article of food as sugar and syrups now are. The energetic and far-seeing bee-keeper will look to this increasing demand and much larger market for a chance for a living income, rather than to a hasty retreat from the business, or to any temporary devices for keeping up the price of honey.

In order that the demand for honey may increase, and the business of honey-producing be put on a firm footing, attention should be turned by all bee-keepers to development of the market. To this development certain methods will tend.

1. Nothing but a thoroughly good article should be put upon the market. No foreign ingredients of any kind should, under any circumstances, be mixed with honey that is sold. If, from any cause, an inferior quality of honey is produced, it should be used for feeding the bees at seasons when they need extra feed to promote breeding, and so be consumed in the hive.

2. All honey, both comb and extracted, must be put on the market in attractive shape, so that it will please the eye of all who see it. The single-comb sections, and the crates with glass sides, seem to offer the most desirable package for comb honey. For retailing extracted honey, tin pails of different sizes will in time probably supplant every other package. I am not blind to the merits of glass jars and cups as receptacles for extracted honey, but the tin pails have excellencies in the way of size, strength, price, and ease of handling that are their own sufficient recommendation.

3. All honey should be classified into grades, and each grade should have a name by which it is known in all parts of the country. Then every producer should aim to have his honey the best of its grade. It would seem that our National Association could do an important work by carefully establishing and naming the grades of honey produced in all sections of the country. Possibly, some of the grades would extend over the whole country, and could be produced by every bee-keeper. Probably some grades would have only a local application, depending on flowers found only in a limited area. But whether national or local, the grades being once established and defined, all would have a standard towards which to work, and so the quality of the honey and the condition in which it is put upon the market, would both be improved and made permanent, and buyers, becoming after a time accustomed to the grades, would have a standard to guide them in purchasing.

4. To develop a permanent home market is usually wise in whatever business one is engaged. There is probably scarcely a hamlet in the whole country where the sale of honey could not be greatly increased. Individual honey-producers should see that every grocer in country, village, and city in their vicinity is supplied with good honey, nicely put up; and that the grocer offers it at a fair advance on the price he paid for it. Often a large amount of nice honey can be sold by peddling it from house to house. By thus disposing of a large part of the



honey crop at home, a better price can be secured for the part thus sold, and there will be a less amount for the markets of the large cities, and for exportation, and hence better prices can be obtained for this.

5. The demand for honey in the large cities could be indefinitely increased by a co-operative effort among producers. By a very large number of grocers honey is now not kept at all, or else is kept in small quantities, and in an inconspicuous way. It is put aside where it is scarcely seen in the grocery, and no systematic attempt is made to call to it the attention of buyers, by showing its quality and beauty and by stating its price. Now, let our National Association, or any other efficient organization of bee-keepers, establish an agency in each of the large cities, in charge of a good business man. Under the direction of this agent let the city be thoroughly canvassed, and every respectable grocer induced to take honey, to keep it on sale in a conspicuous place, to advertise it in the numerous ways known to the trade, and there is no doubt at all that the market in all these large cities could be very much extended. Through such agencies, a very large part of the honey crop of the country could be sold, without going into the hands of jobbers. It is probable that more than enough could be saved in not having to pay commissions to jobbers, to meet all the expenses of such agencies, so that from the first there would be an economical movement, and in the end would create a greater demand for honey, increase our business, and obtain for us higher prices.

6. A market for comb honey and for extracted honey is opening in foreign countries. It is but recently that this market began to assume important proportions. The modern methods of storing honey in single-comb sections, and of packing the sections in crates, enable it to be carried by rail and steamer almost everywhere. Our beautiful comb honey can now be put into the European markets at such cheap rates, that it seems probable only a few years will pass before we shall have a large and constant foreign demand, needing every year a large part of our crop to meet it. And extracted honey is so easily transported in barrels and tin cans to all lands and all climes, however distant, and is already commanding itself so favorably to foreign consumers, that there seems no doubt but persistent pushing may ere long build up for it a large and remunerative demand abroad. The most recent word to bee-keepers, from a firm largely interested in exporting honey, is "to work their apiaries for the exclusive production of extracted honey." If at this early date in the history of the exportation of honey from the United States our honey receives such favor, there is surely good reason to anticipate that wise methods of work may ere long develop a demand that will readily take up whatever surplus may remain after our home markets are supplied. This demand could undoubtedly be rapidly developed by establishing agents in the principal European countries, who should bring our honey to the notice of wholesale and retail dealers, be prepared to prove its perfect purity against all charges

and misrepresentations, and to put purchasers into direct communication with producers, or else to act themselves as agents for the sale of our honey.

If the considerations briefly and inadequately presented in this paper are true, there seems no insurmountable difficulty in increasing the demand for honey in all country neighborhoods, in all villages and small cities, and in all the large cities of our own country. It seems, too, that rational, well-directed efforts may increase the demand from foreign countries to very large proportions.

Iowa City, Iowa.

Mr. Jones, Ont., by request, explained his method of putting up honey. He had tried large barrels; but found his smaller barrels, holding about 100 lbs., the most salable. He waxes his barrels with paraffine, and finds a great saving in honey from leakage, as there is much less strain than on the larger packages. He could not recommend glass, as there would be loss from breakage. He exhibited 30,000 lbs. of extracted honey at the Fair at Toronto, and worked up a great demand then for it. He packed some honey for the interior in 10, 15 and 20-lb cans; these were shipped in strong wooden boxes. He had sold 60,000 lbs. this year,

Mr. Pammell, Wisconsin, found a home demand for all his honey, in 2-lb sections; the demand there being for comb honey.

Vice President Oatman being called to the chair, Mr. Newman addressed the Convention on the subject of packing and supplying honey; the development of the demand for it, and the present and future market for it in the extracted form.

Rev. O. Clute submitted a programme of a series of lectures before the Young Men's Christian Association, in which was announced a lecture by Mr. D. A. Jones, of Beeton, Ont., on "the Bee," and approving that method as being a good one for educating the masses of people in the matter of bee-keeping and honey consumption.

Rev. W. F. Clarke, of Ontario, suggested as a good text for Mr. Clute the following: "Butter and honey shall ye eat."

James Heddon, of Michigan, expressed the opinion that extracted honey was not only better than comb honey, but could be procured so much cheaper that it must inevitably be used instead. He had lately received a letter from an English honey merchant who stated that, although the English and continental crop was small, the price of comb honey in London would not be more than seven or eight cents per pound for the present year. This, he said, was not a very strong

inducement to ship comb-honey to Europe. He had found that this year honey is needed far more than last year, and ascribed it to the fact that honey is scarcer than usual. He was fully of the opinion that honey is not a staple article. He believed an attempt is being made to create an over-supply of honey in this country to glut the market, and to get the market price so low as to be unprofitable to produce it. He inquired of President Newman what had been the price of honey in England at the time of his visit.

President Newman stated that it retailed for about half-a-crown—60 cents a pound.

Mr. Heddon then said he was convinced that shippers were trying to overstock the home market, and induce the belief that honey shipping is attended with great difficulties.

Rev. O. Clute believed that the over-supply would in time create an increased consumption, as had been the case with cheese and strawberries. All that is needed is to call the attention of the public to its good quality.

James Heddon rose to ask a question. He wished to know how it was that if Samson long ago had raised honey in the body of a lion, where was the necessity now of laboring to introduce it, if it had good points of its own to recommend it.

Rev. O. Clute inquired if strawberries had not been raised in Samson's time; yet their profitable production and large consumption had but just now commenced.

D. A. Jones believed that the use of honey could be popularized by getting everybody to use it. He had noticed that the demand in his own neighborhood had increased. Fifteen years ago he could sell but 300 pounds at home, and now he has to keep 10,000 pounds to supply the local demand.

Mrs. Harrison, of Ill., has no trouble selling all the honey she can produce at a good rate. She makes a practice of calling the attention of those with whom she has dealings, to the quality of her honey, and generally effects a sale. She believed she could get all her conscience would allow her to ask for it, this year.

D. A. Jones had used tin cans for shipping honey, but much preferred small barrels.

Mr. Pettit, Ont., had tried glass jars, but his market required fruit jars, and in them he can sell all his crop.

Dr. Slade preferred fruit jars, as grocers generally furnished them and he filled them with honey for 12½ cents per pound.

E. J. Oatman, Illinois, moved the adoption of the following resolution, which was carried unanimously:

*Resolved*, That in recognition of their valuable invention, Mrs. F. A. Dunham, of Depere, Wisconsin, and T. F. Birmingham, of Otsego, Michigan, be made Honorary Members of this Society: the former for her superior foundation, and the latter for his valuable smoker.

It was moved and carried, that an evening session be held, convening at seven o'clock.

#### Evening Session.

The meeting was called to order at 7 o'clock by the President. An essay was read by the Secretary, entitled

#### Dysentery as a Bee Disease.

I will endeavor to shape this article to draw out discussion, and in doing so shall draw largely from an article over a fictitious signature in the AMERICAN BEE JOURNAL for June, 1879, having permission so to do.

What is the greatest and most discouraging drawback in apriarian pursuit, is it not the maladies of our bees? But there are only two that are seriously destructive, to-wit: Foul-brood and dysentery. Permit me to ask: With our present knowledge and experience, could we not have pleasure and profit far exceeding the present if we had some simple and cheap antidote or remedy for these two destructive diseases?

Foul-brood I believe has often been conquered, and the bees, hives, combs and honey saved, but it is not one-thousandth part as destructive as dysentery. Let us endeavor to find the cause and cure of the latter disease. It is true that in the Northern States there has been a coincidence, with the extreme cold winters and the dysentery; but has this disease never made its appearance in mild winters or milder latitudes? Has it not been fully as destructive in scientifically protected apiaries as those on their summer stands without protection? But few will doubt, that bees properly protected in winter are far more exempt from ordinary casualties! Many know that the best of atmospheric protection will not ward off this disease! If the extreme cold causes it, we must suppose that Maine, Vermont, Poland, northern Russia and Siberia, must import fresh colonies every spring, for those States have as long and continuously cold winter every year as New York, Michigan and many other localities in similar thermal latitudes had last winter, and the winters that the disease visited us some few years since with such fatal and wide spread results.

Again the disease has been charged to the juice of the apple, but is it not a fact that the disease prevailed in many apiaries out of the reach of cider mills?

It has been supposed and asserted that it was caused by late-gathered thin honey and that it soured before it was sufficiently evaporated to be capped over; with the splendid dry autumns in this latitude (especially that of last fall) is such a cause possible? I do not think so; but for the sake of the argument, suppose some honey of that kind is gathered, is it not probable that every drop was consumed between the



first killing frost and the time the weather was too cold for them to take purifying flights? Two other obstacles are presented to the theory and reasoning of the benefits of purifying flights, and capped or thick honey. We know and assert without fear of successful contradiction, that they died as rapidly when being fed exclusively upon thick, capped honey, gathered in the preceding June and July and with the purifying flights of from once in two weeks to every day, from the middle of March to the time of fruit bloom. I am giving facts that occurred under my own observation, at a cost of twenty colonies, strong, well packed with chaff, with proper ventilation, and on their summer stands.

We, as well as many others have lost as large a proportion of our bees from dysentery when housed in perfectly constructed and ventilated depositories, as when left on their summer stands.

You, no doubt, expected me to give some preventive or remedy for this fearful disease. I cannot. I know of none. I can guess that it is honey-dew; can guess that to extract all of their honey in the fall, and feed them sufficient of sugar-syrup, they would winter well on it alone, or upon sugar-candy, into which a proper proportion of rye meal or some other substitute for pollen were incorporated. That they will live for at least six weeks upon plain sugar candy, placed in close contact, and at the top of the cluster, I know.

That all honey gathered in the summer months which is thick and capped over is not good to prevent dysentery, I know.

That the disease is caused by honey-dew, I suspect; that it may be caused by a condition of the atmosphere as suggested by the **AMERICAN BEE JOURNAL**, is possible.

Permit me to suggest that a committee be appointed from members of this Convention present, to experiment with two or three hives each, first by extracting all the honey and feeding a portion of the colonies with sugar syrup and a portion with sugar candy, either pure or with flour incorporated. I am really in similar darkness to most of the bee-keepers and the enquirer on page 262 of the current volume of the **AMERICAN BEE JOURNAL**. I want light and information.

Wayne, Mich. E. Rood.

F. F. Collins, Texas, had never seen a case of dysentery in the South.

The Secretary then read an essay on

#### **Fertilization in Confinement.**

I so reduced my bees in the fall of 1878, by rearing successive crops of young queens for experiment, till in November, that I lost all but two colonies during the winter, and it was not till the first of August this year that I had colonies enough, to again continue my trials to work out a practical method of accomplishing the fertilization of a queen in confinement.

Long before I was ready to begin operations, there was published an article in the **AMERICAN BEE JOURNAL** written by H. L. Jeffrey, of Woodbury, Conn., stating that he had been able to have queens repeatedly fertilized when shut up closely in a nucleus with drones. He

remarked that he did not consider it anything that could be made of practical use. If this arrangement would work generally, even if the author could not appreciate it, I thought I could. So the first experiment I tried this year was to shut up half a dozen young queens in nuclei with plenty of drones, and all things fixed as nicely as possible, as far as I could judge, to make a sure thing of it. I did this with great interest and hope, because it seemed to me, that, if this would work, it was the simplest and most practical way of getting queens fertilized in confinement or otherwise. I kept those queens there about a month, and they all had capped brood when I opened the nuclei to let the bees fly out. I think not one of those queens went out to be fertilized, although I have kept them standing till the present, they all went right on laying, but not a single worker-bee ever hatched from their eggs. That settled that theory to my satisfaction.

Well most of these young queens were daughters of a Cyprian—one of two queens imported in June by A. J. King and kindly furnished me for experiment, so I had Cyprian drones in a short time, in abundance. I next went about carrying out some plans I had matured during the winter of arranging two nuclei in the ends of my "long idea" hives to be composed of a comb each of just hatching bees and capped brood, with a virgin queen and a few drones, in a wire-cloth cage which would be kept warm by the heat of the hive, and connected with such small fertilizing cages as I used last season on the outside of the hive.

I rigged up six such nuclei, and waited and fussed with them till the young bees got old enough to come out into the cages as well as the queens, without getting a single one fertilized. Circumstances all seemed favorable, and I could account for the failure only on the supposition that the drones thus reared were good for nothing for fertilization. I rigged up the nuclei again, putting in the same queens and other drones, which I had by this time succeeded in rearing from the old queen, and the first afternoon, had three fertilized, and the next day, a fourth; and the remaining two had now commenced to lay drone eggs and did not come out again.

In watching the fertilization of these queens, I concluded that the fertilizing cages needed improvement. The bottom seemed to be too near the top and afforded too convenient a place for both queen and drone to settle and loaf, and this took up so much time as to be always annoying, sometimes causing failure, and making the process impracticable. So I decided to make the box longer from top to bottom, and when I was about it, I thought I would do it thoroughly. I sawed a foot board into two, lengthwise, cut off four pieces reaching from the ground to about the height of my

eyes, nailed them together, making a long square tube 6x8 inches; I nailed a large piece of thick board to the bottom for a foot and put a pane of hot-bed glass over the top, and bored a small hole near the bottom for an entrance for the queen and drones. I set it near a nucleus containing a virgin queen nearly ready to be fertilized, and to this nucleus I attached a small fertilizing cage, so as to catch the young queen when she came out.

The next day the queen came out, was duly caught, and I let her run into my tall cage, and put in soon after with her, two or three drones. They all began to crawl and crawl, but after long waiting a drone flew up to the glass, and when he was once there, he staid. After a good while the queen next took wing; but she generally flew at one corner, and the drone at another. I concluded that there ought to be a dark border between the glass and the side of the box, so that the one could fly around the other when it was hugging the edge of the glass. I replaced the glass with a piece of board, while I could paste a border of black cloth around it. When I returned the glass, of course, all were crawling again, and they continued to do so till too late for anything else that day. With much difficulty I hunted the queen out of that box, and returned her to the nucleus, and concluded I would sleep that night over the state of the case. It seemed I wanted a larger box, one not so suggestive of crawling, which would furnish a wider dark border to the glass, and yet be better lighted by the window than if narrow.

Next morning, Oct. 11, I took an empty sugar barrel, clean and tight, with a cover fitting tightly over the upper hoop, and into this cover I cut a round hole about 4 inches across, in the center, and fastened a piece of glass against it on the under side. I now waited till I had the queen again in the trap, which happened about 2 o'clock. I put three drones with her and threw them all into the barrel standing in the bright sunlight, and quickly closed the lid. They all immediately flew to the glass, and before I had got ready to look at them fairly, the queen had mated with one of the drones. I took the barrel into a room and caught the queen and returned her to the nucleus. I had two other young queens, which I expected would soon be out, and I had traps then set to catch them; but in my anxiety to see if the thing could be done again, I could not wait for them to come out, so I went to the hive and caught one of these queens with a queen-cage and put her into the barrel with drones. She mated about as quickly as the other, I next tried the third and she likewise mated—not one of the three being in the barrel 5 minutes.

This was my last queen for the season. But I have done. I can hardly expect that every queen will mate as soon as these did; but the arrangement—simple as it is, accomplishes

everything that seems to be necessary—namely, it induces the bees to fly without the loss of any time; to fly in close proximity to each other, and to keep constantly turning so as to notice immediately a mate when near; and so, I believe that queens can be put through the process with sufficient rapidity, to make the method satisfactorily practical. With the right kind of a fertilizing cage, it does not appear to be essential that the queen should be caught on her way out to mate. I think she should be confined to the nucleus till she is certainly old enough to mate, and then picked out and put into the fertilizing cage; but neither she nor the drones should be taken hold of with the hands nor squeezed or touched with any thing that would daub them in the least.

Observing this caution, I think that any bee-keeper who will try, can in this way have all his queens fertilized in confinement; while the trouble required is as nothing compared to the loss he can prevent, and the control he can exercise over the purity and improvement of his stock.

J. HASBROUCK.

Dr. Parmly, of New York, said that he had offered \$25.00 as a premium for an essay giving the plan for a successful accomplishment of fertilization in confinement. Prof. Hasbrouck gave such an essay last year and he has drawn his check for the \$25.00. The Professor gave it into the hands of the President to be awarded this year for further experiments. He was glad the Professor had been successful with his plan this year.

Rev. O. Clute, Iowa, suggested this was a most important question, as it placed the matter of the proper fertilization of the queens completely under the control of the queen-breeders.

J. Balch, Ill., stated that in June last he had found two combs with queen-cells capped, which he removed and placed in nuclei. When the queens hatched he enclosed the hive with mosquito-bar. On the third day the young queen came out, struck the bar, and flew back, meeting a drone and was fertilized. The next day another came out, and was mated the same way; both produced good Italian workers.

Wm. Clement, Iowa, related an instance of a man in Iowa who had met with success in fertilizing a queen in a dry goods box, with a glass placed in one corner.

A. J. King, New York, related that a Mr. Davis had informed him he had good success fertilizing queens in confinement, by the N. C. Mitchell process.

Prof. Cook had tried every way he could think of, but without success. He had not used a barrel; but would try it next season.



Mr. Bingham, Mich., had two queens which were wingless, that some way became fertilized, and both laid eggs which produced worker bees. He asked Prof. Cook if it would not be well to extract the wings from some queens and note the result?

Prof. Cook—I have frequently cut one, two and three wings, but never have had them properly fertilized.

Mr. Clute, Iowa, offered the following resolution; which was adopted:

*Resolved*, That this Convention has heard with much interest the able essay of Prof. Hasbrouck, on "Fertilization in Confinement;" that we recognize the great value of the results attained; that we hope these results will prove to be generally practical, and that we extend to him our hearty congratulations over his success.

James Heddon, of Mich., read an essay entitled

#### Qualities in Bees.

I will try, in as few words as possible, to give you my opinion in regard to qualities in bees, and in different races. Of the German or black bee we have two types common to this locality—one, the small black; the other, the larger brown. Of these two varieties, I find the most desirable qualities with the large brown. After making this division in the German race, I will make another in the brown variety, by stating that I have seen these bees much more peaceful, and better workers, in some localities than in others. I will now make one more division with this same variety by further saying, that in the most prosperous apiaries I have seen some colonies of equal numbers that far excelled those by their side. This physiological difference that gave the apiarist so much better profit and more pleasure, is in no way to be found out except by a season's trial. There are no signs that reveal these differences even to the most expert. I feel that every bee-keeper present is fully aware of what I have stated above.

I will now take up the other popular race of bees—the Italians. The same divisions and subdivisions are in the same way applicable to that preferred race. We have two very distinct varieties of them, viz.: the shorter bright yellow bees, and the long, leather-colored. In my acquaintance, every bee-keeper who has had both varieties, is enthusiastic in his preference for the long, leather-colored bees. My experience is the same. These bees possess more desirable qualities than all the other varieties mentioned. They do not, however, embrace a few of the valuable traits of character that we find in the large brown German bees. I may here mention that some of the hybrids produced by a cross between the dark Italian and light German, are in my judgment the very best bees we have; but it is important that the mother should be of the Italian variety. One very singular and unlooked-for, but acceptable fact, is that this hybrid is not exceeded for good nature by any other bee that I have ever seen.

It might not be out of place to mention some of the traits of these dark Italians that make them so much preferred. They excel in good nature; in good behavior;

as honey gatherers; as comb builders (all except the large brown German bee); most emphatically as breeders and vigilant watchers, being about moth and robber-proof; last, but first in importance, they have with me far excelled any other type of bees in wintering and living through sickness called bee cholera. In no other animal under the control of man do we see more of a disposition toward variation or sporting, both physiologically and characteristically considered.

Here, then, is a grand opportunity for man to improve this little race of animals, up to a standpoint yet hardly conceived of.

First, we must get it out of our heads that physical markings go hand in hand with mental traits. My experience, observation and reading convinces me that they do not. We must stop saying, "The Italians are the best bees." Bees with three yellow bands are called pure Italians.

Porter has such bees, and says they are not better than black bees. I believe him. Dadant has such bees also, and says they are much better than the blacks. I also believe him.

I once wrote that black bees were as good as Italians. Again, I wrote that they were nowhere near as good a bee. I never wrote a falsehood, if I knew it.

Black bees will compare more favorably with any Italians as honey gatherers, if white clover is the surplus crop, and near the apiary; but where long flights or deep nectaries are the order of the day, give us none but the long-bodied, dark colored Italians, and their lucky crosses with the large brown German bee.

Stop and think what a wonderful law of nature it is, that will almost certainly produce a hybrid bee, crosser than either of the races from which it was born. And stranger still, why should this law cease to exist when we cross the dark Italians with the light Germans. We need not at present look after the whys or wherefores, but let us take advantage of the facts, and make a march onward in the desirable qualities of our stock. No class of growers has a better chance to do this than we; first, because of the wide variations in the qualities of bees, and second, because of the rapid production of generations. We can have Miss Queen, Mrs. Queen, Grandma Queen and Great-Grandma Queen, all never having seen a night twelve hours long. For four years I have been working in this direction, and I feel that I am well paid for my trouble. Various and many are the methods that necessity has suggested to control the fertilization of my queens, and weed out all undesirable traits of character from that direction as well as from the others. (I hope to mention some of these plans under the topic of "Queen-rearing").

I am rather of the opinion that all of our Italians are hybrids, and I further think that a race of bees, or strain of any race, cannot be made to duplicate themselves. Further, we don't want any exact duplicates of bees, or anything else. We want better ones. We now have better ones than we used to have, and we are going to have still better ones yet, and so on, better and better. I believe we have some as good, if not more



valuable strains of bees in America than can be found anywhere else. "Necessity is the mother of invention," and bees have got to be "business," to make the comb to hold the nectar that very frequently lies about loose, in the summer time, in this country. Their disposition is to have it all, and nature often hands it out so bounteously that it makes the little fellows cultivate habits of industry, together with solid muscles, to take it all in out of the wet and sunshine.

I think Mr. Pometta did well to take home an American-Italian queen. "Actions speak louder than words." JAMES HEDDON.

Dowagiac, Mich.

Mr. Hunter, of Iowa, said a black bee could sting him 9 times out of 10 before he could kill it; but with Italians he could kill 9 out of 10 before they could sting him.

Mrs. Spencer propounded the question: "Are bees taxable property? If so, how, by whom, and how much?"

Mr. Wilcox. Yes.

Mr. Heddon. I have been assessed every year on my bees.

Mr. Winslow, Wis., has been taxed.

Dr. Slade, Ill., has been taxed for his bees; but in other parts of his county, assessors do not list them.

Mr. Grimm, Wis., has always been assessed one dollar per colony.

Mr. Collins, Texas, has never known bees to be assessed in his State.

Mr. Bingham, Mich., has always been assessed on his bees; but a party keeping but few colonies, is passed over.

Mr. Godfrey, Iowa, has made inquiries in many States, and finds about one in ten only pays taxes on bees.

Mr. King said, in New York bees are taxed 20 per cent.

The Secretary read an essay on

#### Bee Enemies the Bee-Keepers' friends.

In selecting this subject we have endeavored to present something new and yet true.

Many things in life we take as evil which in reality is for our good. The All-Wise Creator, for a good purpose, no doubt, has limited man's knowledge. Some things we know; but there are more things of which we know nothing; and some things we think we know and do not! To pretend to be very wise seems to be a natural failing or weakness of the genus homo! But few ever reach that eminence where they can see the utter insignificance of the whole sum of human knowledge; consequently the world is full of quacks, called by some scientists.

They will give you a long-winded theory, interspersed with foreign words, to make a show of wisdom, while what they tell you neither they nor anybody else know anything about. These quacks pervade every profession in life. They impose themselves on a credulous public with the expectation of adu-

lation and reward. And our noble profession is no exception to the general rule. In every department they are found. They can tell you how to perform every operation from a possible fertilization of a queen, to the changing of the sex of the egg, and especially how to make a fortune out of nothing. This is one of the enemies of the bee. Thousands of hives are destroyed by novices in attempting to follow these quacks.

Dysentery and foul-brood, both from the same cause, are enemies that make their periodic slaughter without respect to persons. This is the great enemy of all, defying a stay in its progress.

Another foul-brood is that hoard of patent vendors, with their oily tongues and glib mouth. Samson-like, they slay thousands. Next is a less pretentious but just as important animal—the toad. He will walk up to a hive of bees with less timidity than either the quack or humbug-vendor, and take a position where he is prepared to take the "little busy bee" in out of the wet. However, this is not much of an enemy, and we rather admire his temerity, and do not know but he is entitled to all the poison and honey he can get; one probably the antidote of the other.

The bee-killer is an insect that belongs to a species of the genus, specie-resumption goldbug. The way they can be told is by their long legs and proboscis, by which they are able to hold an enemy fast, suck out his life-blood, and yet be clear out of reach of harm. The difference between this species and another is not much: One takes the honey before we get it, and the other, after. With his long legs, (National banks) and his long proboscis (bonds), he is able to suck labor dry of any fruits with the greatest ease imaginable.

The great bugbear, bee moth, can hardly be classed as a bee enemy. It is more of an enemy to the bee-keeper, in that it prevents many sales of bees to the inexperienced.

Other enemies might be mentioned, but to be brief we will turn to the other side of the question. How are those enemies the bee-keepers friends? We answer: because they keep the stock of bees in the country so reduced that there is a market for both bees and honey. Without these enemies bees would become so numerous that there would be sale for neither, and our occupation would be gone.

Suppose that there was but one colony of bees in the United States to-day. In thirty years, with the moderate increase of one swarm from each colony, annually, there would be bees enough to establish an apiary of 100 colonies on each farm in the country.

With the present number of bees and the same rate of increase, in a much less time than thirty years, there would be bees enough to establish a colony on every acre of land in the United States. Methinks Jasper Hazen would then have lots of disciples, if not sooner.



These figures forcibly present to us the necessity of some mode to regulate the increase. If it was left to our choice we would undoubtedly select some other than dysentery or foul-brood. Even the "sulphur pit" might be preferable. Nevertheless, the present, probably, is the very best that could be devised for the best interests of the bee-keeper.

While all suffer alike, the most careful gathers up and saves what the inexperienced and careless let go to waste. Therefore, with a few bees, his hives are again soon re-stocked; while with the other, combs are destroyed by a brood of moth, and his hives go to waste.

It is the fiat of the Almighty that man "shall eat bread by the sweat of his face," and, possibly, his honey too; and although bees "work for nothing and board themselves," some of us have found out that we cannot have much honey without an effort.

Lawrence, Kan. N. CAMERON.

The N. E. Wis. B. K. Association having had some correspondence with the Postoffice Department on the subject of sending bees in the mails had sent it to the Convention to be read. Mr. Detweiler also presented a letter on the subject, which was read. After some discussion it was

*Resolved*, That Prof. Cook, D. A. Jones and President Newman be appointed committee to bring the matter before the P. M. General and endeavor to have the ruling reversed.

A. J. King moved that the committee endeavor to have the comb foundation ruling also reversed. Carried.

An essay was read by the Secretary entitled

#### **Are Cheap Queens the Most Profitable?**

The first question asked, when a man purposes entering into a new business or when taking up some new branch of his business is, Will it pay? The rearing of queens is now carried on by a great number of persons, and consequently the supply is increased to such an extent that the prices have fallen so much that men can scarcely afford to rear them at all. They must curtail their expenses as much as possible if they wish to make a living profit.

Certainly in all kinds of business, that which gives satisfaction to buyer and seller is considered the cheapest and most profitable. When a man invests in untested queens, the probability is that they may mate with black drones and if they do so, all his labor is lost. It would cost him no more labor and but little more money to introduce tested queens, and the result would be far different. Should he fail with his untested queens all will be lost, while on the other hand, he can refer to the seller, who will at once correct his loss.

Will not the introduction of untested queens into our apiaries prove detrimental to the bee business? As there is no incentive to keep colonies pure, will not our bee-keepers allow the purity of their stock to be lost?

If our apiaries become filled with impure bees, will not the business fall to the ground, and will not the few who keep their stock pure then make the money?

Smithsburg, Md.

D. A. PIKE.

The members of the Association were decidedly opposed to the sale of untested queens, and fully agreed with the last essay.

The Secretary then read the paper entitled

#### **Comb Foundation.**

Can anything that is new or instructive to my fellow members of this Society be said on the subject of comb foundation after another year's trial and experiment?

Many of us were startled at the last annual meeting by the words of the able and practical N. N. Betsinger in giving his experience for that year and his words of caution, to "go slow." Evidently its use is extending each year, and that may in some measure be taken as an indication of growing popularity. No statistics are obtainable as to the amount used annually, but in the aggregate it must be enormous. Its use would not be long continued did we not find it profitable.

In my own apiary it has proved a success. Indeed, were I to choose between comb foundation and the honey extractor as auxiliaries, I would sooner dispense with the latter than forego the use of the former; not having found any serious trouble with sagging, which I guard against by building out in nuclei or small colonies and also in strong colonies while not actively storing honey.

I like the latter method best, for often in a single night have the cells been so lengthened and strengthened as to withstand ordinary strain.

However, I would say that my experiments have been made when no extraordinary or even full flow of honey was coming in, for we have had none such here for two years.

It seems to be so easy to control this matter of sagging, however, by a little care, that I have seen no necessity for trying the more expensive wire foundation.

If put into full colonies during any period of cessation from honey gathering, or in the brood-chamber where the queen will at once take possession, I have invariably found them to be duly strengthened before any strain comes upon them.

It seems to be a matter of importance that the top bar be made sufficiently stiff, and it is believed that it needs a stiffer bar than would be required for natural combs.

What are the advantages to the bee-keeper in the use of foundation? Among them may be named the more perfect control of drone-production; a matter of vital moment where purity in breeding is desired. Again because it enables us to multiply rapidly our combs in seasons when their possession alone may de-

termine success or failure. Who that has had to cut away for the third time patches of drone comb, persistently built where it was not wanted, or who has after a few days of neglect found thousands of partly matured drones worse than useless in his hives, but will hail with delight the advent of foundation?

I cannot recommend the use of foundation for comb honey except as narrow starters, for while it is true that it may be worked down thin under favorable circumstances, it is equally true that "bone" is often found in the middle to the great injury of its market value. I have found no trouble with the flat-bottom comb, but with me bees do not take so kindly to that style as the naturally-shaped-cell foundation. Natural starters are preferable where they can be had. Some experiments were made with whole sheets of flat-bottom foundation with a view to their use as starters; but even in crowded colonies many remained untouched.

Thinking that some offensive material might have been used on the rolls, I wrote to the manufacturer and was assured to the contrary. I hope we shall hear from other members as to this new and really beautiful production introduced so recently. With many regrets that I am unable to be with you at this meeting, caused as it is by my strong desire to help redeem my state, by adoption, of the stigma of repudiation at the coming election, I wish to be with you heart and soul for the advancement of enlightened apiculture, and enclose my membership fee, \$1.00, for 1880.

Charlottesville, Va. J. W. PORTER.

D. A. Jones had bought the second comb foundation mill that was made, and he still had the same one in use.

Messrs. Cook, Godfrey, Winslow, Schofield, King, and others expressed entire satisfaction in the use of comb foundation.

Adjourned till 9 a. m.

#### THURSDAY—Morning Session.

The Convention convened at 9 a. m., President Newman in the chair. The first business being the selection of the place for the next meeting; after some discussion Cincinnati was selected by a large majority, the time for holding that meeting being left with the Executive Committee.

On motion of W. F. Clarke, it was

*Resolved*, That the Chicago daily papers be presented with a vote of thanks for the very full report of our daily proceedings. Carried.

President Newman presented to each of the reporters a box of choice comb honey. This was greeted with general applause.

A. J. King, of New York, was called upon to state his experience with so-called Cyprian bees. He stated that he is not certain whether they are pure

Cyprians or not. His bees are better than either the Italian or the common variety.

Prof. Cook said that if any pure Cyprians could be found in this country Mr. Julius Hoffman had them.

Prof. Cook exhibited and described a botanical collection of plants adapted to furnishing nectar to bees. His favorite plant was the Bokhara melilot, or sweet clover. A large number of other plants were exhibited.

A paper was then read by the Secretary on

#### A National Apairy and Queen Rearing Establishment.

When your Executive Committee requested me to write a brief essay to be read before your Convention, they were desirous that questions should rather be opened, and not exhausted; but thoroughly discussed by your distinguished assembly. I shall, therefore, make my remarks very brief. The title of my sketch is so suggestive, in my opinion, that it is unnecessary for me to propose in detail any plan of operation. I shall, therefore, only draw a few outlines, and leave the matter to the consideration of the distinguished gentlemen in Convention assembled.

My opinion is, that such an establishment would pay large dividends, and add greatly to the reputation and dignity of American enterprise in this direction, recognizing the fact that even now the learned apiarists of Europe are "looking for more light" from America, the time will soon come (if it has not already) when the United States, through the combined efforts and enterprise of our bee-keepers, will be the most reliable and leading mart of the world in all that pertains to bee-culture.

Suppose you were to appoint a committee in every State to solicit subscriptions for a National Apairy and Queen-Rearing Establishment, shares in the enterprise to be \$5.00 each, redeemable the second year, after organization (to a limited extent) in goods from the establishment at the option of shareholders; say 25 States were represented, by 40 shareholders each, making in all \$5,000, expended as follows:

200 acres of land, at \$5.00 per acre.	\$1,000
2 tenement houses for workmen, at \$300.	600
1 dwelling house for Superintendent.	800
1 apairy or bee-house.	100
1 work-shop.	150
1 stable.	50
25 colonies of bees in hives, at \$4.00.	800
6 months' salary of 2 men, at \$35.00.	420
6 months' salary of Sup't, at \$65.00.	390
Material for new hives, queens, etc.	300
Expenses of locating and organization	300
	\$5,000

As regards the price of land, I am informed that first-class timber land can be bought at the present time along the line of the C. S. R. R., which is now fast being completed between Cincinnati, Ohio and Chattanooga, Tenn., at from \$2.00 to \$5.00 per acre, which would prove as profitable for the purpose as high priced land in any section of country. The timber alone on the land I mention, if utilized, would more than pay for the cost of land. The location for



a large apiary cannot be excelled ; close to the borders, between Kentucky and Tennessee. The profits, if any, for the first year could be judiciously expended in further improvements.

An institution of this kind, where so many would be interested, each shareholder a customer, and each soliciting the patronage of their friends, with the endorsement and influence of the North American Bee-Keepers' Association, or National Convention, conducted on right principles with good management, it could hardly fail to pay a handsome dividend, and at the same time be an establishment which all American bee-keepers would eventually be proud of. Some may think it would injure our private business, but I cannot think so. I am led to believe that such an institution would rather tend to stimulate the whole bee-keeping interests and place our occupation in that dignified position the profession deserves. And it might be in a few years, that many young men who are seeking light and profitable employment, would gladly avail themselves of a course of instruction in apiculture at the National Apiary and Queen-Rearing Establishment.

Proper safeguards should be provided to protect the interests of every shareholder equally, and such officers elected that will guarantee the enterprise a success from the beginning, viz : President, one Vice-President from each State represented, a Board of Directors, Secretary, Treasurer, and Superintendent. The latter to make a monthly report, to be published in the AMERICAN BEE JOURNAL.

It is unnecessary at present to enter into further details. I offer the crude suggestions, for what they are worth, my object being to call the attention of the North American Bee-Keepers' Association to the propriety, or impropriety, of organizing a National Apiary and Queen-Rearing Establishment.

W. WILLIAMSON.

Lexington, Ky.

James Heddon, Mich., said he was decidedly in favor of the project, and would at once nominate himself for Superintendent with a salary of \$2,500 a year. He would be willing to guarantee that there would be no honey raised. It should be located at Petoskey.

The Secretary read an essay entitled

#### How to Prevent Swarming.

For several years we have had as many colonies of bees as we wished, but never enough honey. Therefore, our attention has been directed to how to prevent increase of bees and turn this over-production of colonies into augmenting the tons of surplus honey. Bear in mind that the directions I shall give are suitable for our location, and not for all places.

I do not stimulate in spring by feeding either in or out of the hive, for by such I would defeat the objects I have in view, viz : less increase and more honey ; for by artificial stimulating I cause my hives to be over-crowded, and in consequence have an increase of swarms to provide hives and

surplus arrangements for, and but little or no honey from the old or new colonies.

Come with me (in your imagination) about the 15th of March to "Sweet Home" apiary ; you see my hives have just been placed on their summer stands : they are double-portico Langstroth hives, having an entrance at each end ; the back entrance is entirely closed by one piece of wood, the front is nearly closed by two blocks. As soon as I find a colony strong enough to cluster outside I remove one-block from the front entrance, and repeat the same with the remaining front entrance block when necessary, and also with the back entrance block, thereby securing good ventilation and preventing in a great measure the hive from being overheated.

As warm weather approaches and the hot sun of summer causes the bees to still cluster outside, although both entrances are open, it becomes necessary that the hives should be shaded.

By giving plenty of surplus room for the storing of honey, and by extracting often enough from those hives we run for extracted honey, will keep them almost entirely from swarming. To give plenty of surplus room in those hives run for comb-honey is not so readily done. To accomplish this we use a double-portico Langstroth hive, which gives us room for four boxes of seven prize sections each, or 28 sections in all, holding about 42 pounds where tin separators are used. These sections have each a piece of foundation used as a guide and inducement to work in the box ; as a still greater and earlier inducement, we put in the center of each box one section filled, or nearly so, with comb, from which we have extracted the honey the previous fall. In these sections we wish to give them working room at all times to cluster, build comb and store honey that the brood combs may not be crowded with honey. As fast as these sections are filled and finished, they should be taken off and their places filled with empty ones.

By using worker-foundation and cutting out drone comb, we prevent the over-production of drones ; this excessive supply of drones we believe causes much of the swarming fever. We will reiterate what we said years ago in the AMERICAN BEE JOURNAL, that a hive in which there is no drone comb to raise drones will not swarm.

To sum up in brief, ventilate, shade, give plenty of surplus room and raise no more drones than you need, and those few from choice colonies.

But in spite of all these precautions, we will have many swarms ; to make these as few as possible with the least labor, we put the first swarm in a new hive, for so far we have found it useless to return the first swarm. We then mark on the slate (of which we are the inventor) of the old hive "'79, June 15, sw'd." On the slate of the new hive we put "'79, June 15, sw." In from 5 to 10 days afterwards we have a second swarm. While the bees are clustering we pinch all the queen-cells and then return the swarm, thereby putting an end to all swarming of that hive for the present.

You will see the use of the slate as a register in swarming, when the first swarm

came off we marked on the slate "79, June 15, sw'd." When the second swarm came we saw on the slate that they had swarmed a few days previous. By this record we then know that this is a second swarm to be returned. By this means our apiary of 250 colonies has increased but little for the last three years.

D. D. PALMER.

New Boston, Ill.

Mr. Sherman, Mich., places a swarm from another hive, into that from which the swaam has come, saving the necessity of pinching queen-cells.

Dr. Ranney, Mich., being called, said he had no special way.

Dr. Slade, Ill., called for Mr. Oatman's experience.

E. J. Oatman, Ill., could not freely give his experience, as he has a series of experiments under trial, and has arrived at no satisfactory results. He believes he is developing a race of bees without swarming tendencies; it requires another year to determine the question. If it is successful, he will then make it public, but would not like to do so before, as it may prove detrimental to others.

A. A. Winslow, Wis., stated the method of a bee-keeper in Ripon, Wis., to be the same as that of Mr. Sherman.

C. S. Schofield, Ind., thinks he can control swarming by using a wire-cloth cage, the size of a comb, enclosing it entirely, then place the queen in the cage and on the comb, with a little brood, and many empty cells. The bees build but two or three queen-cells.

Mr. Bailey, Wis., corrected statement of Mr. Winslow. Mr. Dart has not tried the method suggested, but intends doing so.

Mr. Godfrey, Iowa, thought Mr. Schofield's plan impracticable in a large apiary.

#### Afternoon Session.

The order of business being selection of the Executive Committee, the following were elected: T. G. Newman, Chicago, Ill.; C. F. Muth, Cincinnati, O.; E. J. Oatman, Dundee, Ill.; F. F. Collins, Dallas, Texas; A. J. King, New York city; D. A. Jones, Beeton, Ont.; William Pierce, Dayton, O.

The President announced that Gen. Le Duc, Commissioner of Agriculture, was present, and called upon him for a speech. The General volunteered to induce the general government to import and distribute the seeds of honey-bearing plants to a limited extent, and also to assist the committee in the matter of inducing the P. M. General to reverse his decision concerning the sending of bees by mail.

A proposition to amend the constitution in regard to lady members being admitted free was voted down.

An essay was read by the Secretary entitled

#### Shall we Induce People to keep Bees?

Many will answer this, Yes—a few, myself among them, will say, No! I think this indiscriminate advice to all persons, no matter what their condition of life or adaptability for the business, to keep bees, is all wrong and brings much discredit on our profession. People are urged to keep bees because they are poor or out of work, are sick and need the gentle (?) exercise, to ensure wealth and a return to health; especially are the invalids and ladies urged by all means to take up bee-keeping as the one thing needful for health and wealth. Our bee periodicals, and nearly all of our prominent writers, hold up in glowing colors the ease and advantages of a bee-keepers life, and but very little notice is taken of the very many who make bee-keeping a failure.

It takes hard work and lots of it, and plenty of money, too, to carry on bee-keeping as it ought to be, for profit. As to its being invalids' and gentle ladies' work, listen to one of them, which I quote from a letter of recent date from a New York bee-keeper: "I purchased a few colonies of bees last spring; I am sorry I bought any, and will sell again if I can, and unless my health improves, I shall dispose of most all the bees I have at some price, because bees require care and unless care be given them when they need it, they are of no value or profit whatever. I find it is busy, hard work to take care of bees as they should be, and for an invalid or sick person to think of taking charge of more than 3 or 4 colonies, is out of the question."

We tell of the great yields and large sales of the few, but very little of that which tells of the failures, disappointments and disgust of the hundreds is told, in comparison to what there really is to tell. Many start into bee-keeping with bright hopes of speedy and easy success, only to find in the end failure and "blasted hopes," because they were not adapted to the business and never would be. True, there are a very few who have gained wealth and good health by it, but they are few compared to those who fail. What other profession can you find where its votaries are so eager to have everyone come and stick their finger in the pie, as we bee-keepers are? It reminds me of a flock of chickens, one finds a dainty morsel, and instead of eating it in peace, sets up his cry and starts off on a run with the rest all "tagging" after him.

It is natural enough for the supply dealers to want everybody to keep bees, but we bee-keepers ought not to want it, especially when we mislead them to their loss and our detriment. Our Conventions are said to be run in the interests of supply dealers, but they ought not to be. My ideas of the use of our societies, is to get bee-keepers to organize; to use as much as possible, uniform styles of hives and honey packages; to learn from each other the best methods of handling our bees, marketing honey, etc., and not to give dealers a chance to sell their wares and to induce more to go into the business; but to instruct what are



already engaged in it. If a person comes along who wishes to start in bee-keeping, give him all the advice and information in your power; get him started right, or not at all. I don't wish to be understood that I am opposed to the bee periodicals or the supply dealers, for we need them both. But I am strongly opposed to inviting everybody to join our ranks. Brother bee-keepers of the National Convention, I have set the ball rolling, kick it whither you will.

Quawka, Ill. WILL M. KELLOGG.

J. Heddon, Mich., thought bee-keeping anything but a health-giving occupation.

A. A. Winslow found it quite health inspiring.

J. Heddon, had a statement to make and wanted it printed in the JOURNAL. About three years ago he was attacked by a complaint something like hay fever. Last summer he went to Petoskey, Mich., and was cured; but upon his return, on going to work in his honey-house, he was again afflicted.

Mr. Collins, Texas, suggested an immediate cure to be the application of 2 or 3 good, healthy Italian workers.

The Secretary read a paper on

#### Introducing Virgin Queens.

There is something strange, and to me unaccountable, in the antipathy of bees to a virgin queen not hatched among them, and even to one hatched in a cage within their own hive and surrounded by them on all sides. One would think that when queenless they would as readily receive a virgin queen as a laying one; but such is not the case.

It is a fact which every queen-breeder has found to his cost that a considerable per cent of the queen-cells introduced to nuclei or to full colonies are destroyed by the bees before the young queens hatch, and there is loss and delay in providing queens for them. To cage cells and introduce them is exceedingly easy. A queen nursery is easily constructed by any one who has any mechanical skill, and where queen-cells are plenty, and there are not hives ready to introduce them, they can be caged, put into the nursery, hung in any hive in place of a frame, and the young queen allowed to hatch. All this is easily and quickly done; but the trouble begins when we attempt to introduce these newly hatched queens among strange bees.

The first plan proposed was to place the newly hatched queen among the bees before she had colored, as soon as possible after she had emerged from the cell. But I, and doubtless others, have found that this plan is not uniformly successful. Sometimes the presence of a queen so introduced will be tolerated until another can be reared, when she will be destroyed. In other cases she will be hugged to death or stung within a few hours of her introduction. In some cases she will be

received, and the experiment will be successful. In the swarming season, when honey is coming in plentifully, the plan would probably succeed in a large majority of cases, at other times but few would be received.

Some years ago I thought I had discovered a plan by which an apiary might be Italianized with neatness and dispatch; I caged a cell and put it into a hive where there was a laying queen. As soon as I found that the young queen had come out of the cell, I removed the old queen, and in twenty-four hours opened the cage, and allowed the young queen to come out. The experiment was completely successful, and I rushed into print, as an enthusiastic novice naturally would, and proclaimed to the world my valuable discovery. This was near the close of the season, and I did not have opportunity for further experiment until the next summer. Others took my advice, and I followed up the plan the next season, but the result was a pretty general failure.

When a queen-cell is caged and introduced into a queenless colony having eggs and brood from which a queen can be reared, the bees will, in many cases, destroy the young queen when liberated or shortly after. When she first comes out among them they may not seem to be hostile. Some of them may offer her food, and you may think she is perfectly safe, but in a day or two, if you find her at all, you may find her dead in front of the hive.

But there is one plan which with me has been uniformly successful, and that is to deprive the bees of all brood. When that is done it is as easy to introduce an unfertilized queen as a fertile one; I have not failed in a single case, except in a few in which the queen got fast between the cage and the comb of honey put in for her subsistence, and died. Nuclei may be made by putting a sufficient quantity of bees with combs of honey and no brood into a hive, together with a caged virgin queen, and keeping them confined for not less than 48 hours, (72 would not be too long) when they will not return to the hives from which they were taken. The young queen may then be liberated with perfect safety, so far as my experience teaches me. It may be asked, Will not the bees desert the hive when the queen leaves on her bridal excursion? I answer, No! I have reared a great many queens in nuclei, and I have never given one unsealed brood to prevent them from leaving, and have never had a swarm to leave. I do not believe that there is the slightest danger of their leaving if they have plenty of honey, and the nucleus hive is not too much exposed to the hot sunshine, nor over-crowded with bees.

The best introducing cage I have found, one which I have very recently adopted, is made as follows: Take 4 pieces of wood about  $\frac{3}{8}$  of inch square and 3 inches long: lay 2 of them down on your bench parallel with each

other and 3 inches apart measuring from outside to outside; lay a third one against the ends of these two, so that the three will form three sides of a square, and with two ounce tacks, put wire-cloth over them. Now turn your cage over and tack wire-cloth on the other side. You now have a cage  $3\frac{1}{2} \times 3$  inches square with one end open. To close the open end take the fourth piece of wood, and cut a shoulder on each end so that the shoulder will fit tightly between the side pieces. Having put your queen into the cage press the wires of one side of it slightly into the sealed honey of one of the combs, and fasten it there by 4 slender wooden pins about  $1\frac{1}{2}$  inches long, 2 near the top and 2 near the bottom of the cage, run through the meshes of the cage and into the comb. One of each pair should be slanted upward and the other downward. Care should be taken to have room for the bees to pass between the cage and the comb next to the one on which it is fastened. Green wire-cloth must not be used, as I know to my cost.

M. MAHIN.

C. S. Schofield, Ind., wanted information regarding the introduction of virgin queens.

E. J. Oatman, Ill., had not been always successful in introducing such. During a honey flow, there is generally little trouble. When there is no honey secretion, he feeds a little, which lessens the hazard.

The Secretary read an essay entitled

#### Can Bee Culture be made Profitable?

Can bee-culture be made profitable; if so how? Can a duck swim; if so how? would be to me a parallel question. Like all other pursuits, bee-culture will not manage itself, as many who have undertaken it and failed, know by sad and costly experience. But to the one who means business and has the grit, I say yes, most emphatically, and point you to those who have become prominent by their success. I refer to Capt. Hetherington, Julius Hoffman, D. H. Van Alstine, L. C. Root, C. C. Van Deusen, and others of my own immediate neighborhood. There are many others in the Mohawk Valley and elsewhere, but I do not deem it necessary to name them. They are well known to most of you. It is true we know of none who have grown rich by this business. There is too much work about bee-keeping for a rich or a lazy man.

Although the bees "work for nothing and find themselves," a portion of the work which they cannot do must be performed by the bee-keeper. And here let me say that he who makes bee-culture profitable must have the same disposition to work that his bees have.

To establish the fact that bee-culture can be made profitable is our first point, but that fact is pretty well proven already. To give the reasons for failures to make it profitable is

perhaps my best ground to work on, and I will say here, and you are all ready to admit it, that bees kept in the old-fashioned way cannot be made profitable any longer; on the contrary, every improvement which is found after trial to be such, should be adopted. All the means in our power to help the little fellows along, should be employed; and to accomplish this, we must first learn the business ourselves, both theoretically and practically.

To begin properly, get several good textbooks, and subscribe for some good periodicals. Read them and get yourself full of the subject, so that you think of bees the last thing at night, the first thing in the morning and through the day. If you do this you will get some theory—perhaps too much. Now for the practical part: go to some good bee-keeper and hire yourself to him for a season, or if he will not hire you, give him your services. (It will pay in the end if you mean business). After passing through this course you are ready to try a few colonies on your own hook. Let it be only a few at first and increase only so fast as you are able to attend to them thoroughly. Remember that a few colonies, well kept, pay better than a good many half-kept. Do not think, when the honey season is over and you have harvested your crop, that the work is done. Not so; you must think and study and work for next season. A good and successful bee-keeper is one season ahead all the time, with his work, and no one can calculate his success by one season—take the average for five at least.

Bee-culture to be made remunerative must not be made a side issue. It must be the first business of the proprietor, and he must not have too many "irons in the fire" to divide his time and thought. The bee-keeper must not only work with his hands but also with his brain. Calculation must be made in winter for the following spring and summer. It would be well to lay out a definite or systematic plan. This being done, make all the necessary preparations in winter.

A good location has everything to do with making bee-culture profitable, and by a good location I mean not only that bee-pasturage must be abundant, one crop succeeding another through the season, but that the apiary should be located in a favorable spot. A hill-side sloping to the south-east is very desirable. Protection from high winds is a great necessity. In fact, success in wintering in northern latitudes depends largely upon a warm and sheltered position for the apiary.

Canajoharie, N. Y. J. H. NELLIS.

Mr. Heddon, Michigan, thought bee-keeping, to become profitable, must eventually be concentrated in the hands of specialists; that farming and bee-keeping did not assimilate as much as carpentering and bee-keeping; that times were not going to become better



for the average bee-keeper, and that we should not be too ready to advise everybody to go into it.

Dr. Parmly, New York, believed it was better to persuade intelligent persons to keep a few colonies.

Mr. Jones, Canada, disagreed with Mr. Heddon and illustrated his argument by the names and addresses of several persons, combining bee-keeping with other occupations.

Prof. Cook, Mich., thought no one should keep bees who is not determined to make the business a success.

Mr. Collins, Texas, thought it better in his locality to persuade others to go into bee-keeping.

C. O. Perrine, who had just arrived stated that he had made quite a number of attempts and failures in trying to conduct a floating apairy. He was now prepared to advise that bees be kept as far as possible from large bodies of water. Last year he had lost all his working force of bees in two days from a cold wind, they fell into the water and perished. He has still a full belief in the migratory system, but will hereafter move his bees from the north to the south on the cars. This will only cost about \$100.00 for a car-load holding from two hundred to five hundred colonies. He intends to bring his bees south in this way for the winter, and back north for the summer. He would come north about April 1, as no honey can be had in the south during the summer months.

T. F. Bingham, of Mich., was called upon and gave his experience with migrating bees. He had found that the loss of brood was the most serious obstacle which he met with in shipping by rail. He had come to the conclusion that he would have lost less by leaving his bees at home in the north.

Question by T. M. Marquis: What is the best method of securing straight combs?

E. J. Oatman: By using foundation.

L. M. Wainwright: Put the frames a little closer, or put an empty frame between two full frames.

J. L. Harris, Ind., moved that the evening session be held at the office of the AMERICAN BEE JOURNAL and that the \$5.00 saved in hall rent be contributed to the Langstroth fund. Carried.

C. S. Schofield, Ind., moved that the President procure likenesses of Langstroth, Dzierzon, Huber, &c, and have copies made for sale. Carried.

The following bills were presented and ordered to be paid. Rent of Lyceum Theater \$35.00. Executive Committee's general expenses \$20.00.

Letters were read from J. H. Nellis, C. F. Muth, S. C. Dodge, W. S. Fultz, N. Cameron, T. B. Williams, J. M. Hicks, Dr. J. P. H. Brown, A. E. Wenzel and many others who had sent implements for exhibition.

#### Evening Session.

The President called the meeting to order at 8 p.m. On motion the Executive Committee were requested to prepare badges for those who may hereafter attend the National Conventions; also they were instructed to procure medals to be awarded for the best exhibition of bees, honey and implements for the apairy.

By request C. C. Coffinberry gave an address on preparing comb and extracted honey for the market, and strongly advised the use of small barrels for the latter.

C. O. Perrine said he sold 20 lbs. of extracted to 1 lb. of comb honey; for the latter he preferred the unglazed section, holding about 1½ lbs. He desired the Association to appoint a committee to visit Louisiana next May for the purpose of information. On motion this matter was referred to the Executive Committee.

Mr. Collins of Texas, gave a description of the usual way of managing bees in the South. They were hived in hollow gum-tree logs, and many did not know how many colonies they kept nor how much honey they took. When they wanted to go to market they simply smoked and robbed some of them, and took it, comb, strained-honey, bee-bread, and young bees all together, and sold it, for not a great price, of course. He was anxious for more information to be disseminated as to bee culture among the people.

After further discussion the convention adjourned, to meet next year in Cincinnati.

#### Articles on Exhibition.

Mrs. F. A. Dunham, Depere, Wis., comb foundation mill.

James Heddon, Dowagiac, Mich., bee feeder.

Ch. Dadant, Hamilton, Ill., sheets and samples of comb foundation.

J. E. Moore, Byron, N. Y., crates of sections with his perfection caps, with and without honey.

Chas. Sonne, Sigel, Ill., box of specimens of *Asilus Missouriensis*, (bee enemies.)

Prof. A. J. Cook, Lansing, Mich., specimens of honey flora.

Dr. J. P. H. Brown, Augusta, Ga., specimens of southern honey plants.

R. F. Collins, Dallas, Texas, specimens of cotton bolls.

G. McPherson, Chicago, Ill., frame holder.

J. H. Nellis, Canajoharie, N. Y., box of samples of aparian supplies, and *Bee-Keepers' Exchange*.

T. F. Bingham, Otsego, Mich., samples of honey knives and his new bee smokers.

J. Van Deusen & Sons, Sprout Brook, N. Y., samples of flat-bottomed comb foundation.

H. H. Cheney, East Saginaw, Mich., atmospheric bee feeder.

J. M. Shuck, Des Moines, Iowa, bee smoker, bee feeders, and model of his Universal hive.

J. W. Winder, Terre Bonne, La., introducing cages.

H. Scovell, Columbus, Kansas, two smokers.

H. K. Cotton, Mt. Vernon, O., hive with movable inside straw packing, and glass feeder.

T. S. Bull, Valparaiso, Ind., crates of comb honey and jars of extracted honey, swarm catcher, and comb foundation made on German plates.

J. W. Bailey, Ripon, Wis., swarm catcher.

Elvin Armstrong, Jerseyville, Ill., Centennial hive and samples of comb and extracted honey.

C. L. Sweet, Cook Co., Ill., bottle of white clover honey.

George Thompson, Geneva, Ill., honey mead and honey wine.

A. E. Wenzel, Callicoon, N.Y., model of hive with iron clamps, put together without nails or screws.

A. G. Hill, Kendallville, Ind., American hive, and gas-pipe honey extractor, hive cover packed for wintering.

A. J. King, New York City, bee smoker and model of Eclectic hive.

J. L. Harris, Wheeler, Ind., bee hive and block for sawing mitred corners.

W. J. Plecker, Galesburg, Ill., automatic machine for nailing honey boxes.

R. R. Murphy, Garden Plain, Ill., Langstroth hive and surplus boxes.

**THOS. G. NEWMAN, President.**  
**ERICK PARMLY, Secretary.**

#### NEW ADVERTISEMENTS.



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Some of its advantages are as follows: It is made entirely of metal. It is light, but has attachments for fastening down to a platform. It can be instantly taken to pieces for cleaning, having no rusty screws to take out or nuts to remove.

The top or cross-hand, to which is attached the gear, is wrought iron, three inches broad, with the ends turned down in such manner as to thoroughly brace and strengthen the can and hold the basket firmly in an upright position.

The strong over-motion gearing, so necessary to ease in running and speedy operating, was designed and is manufactured expressly for the Excelsior. A child ten years of age can operate the machine as rapidly as it can be supplied with combs.

The Comb Basket having vertical sides, insures the extracting power alike for top and bottom of frames. The sides of the basket being movable and interchangeable, greatly facilitate the operation of dusting before and thoroughly cleaning after use.

It has a small comb-holder for extracting pieces of comb or partly-filled sections.

At the bottom of the can, and below the basket, is a cone or metal standard, in the top of which revolves the bottom pivot of the basket, thereby giving room for sixty or seventy pounds of honey without touching the basket or pivot below.

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The baskets of Nos. 4 and 5 have no center rod running from top to bottom, which will be found very convenient by those who uncaps both sides of the comb before putting in the basket, as they can be turned without removal.

The wire baskets are very neat specimens of skillful workmanship, thoroughly braced at every point where experience has proven it to be most requisite, and nothing has been omitted that could add to its efficiency.

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being called for by those having but few colonies, and not making a specialty of bee-keeping, I have made a special size to take the Langstroth frame, and one for the American, to sell at \$8.00 each. These have no covers or strainer, and are smaller than the \$12.00 and \$14.00 sizes, but for the frames named are equal to the others for effective work, and are the best cheap Extractors made.

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This Romance of Bee-keeping has received wide commendation for its literary excellence and its contagious enthusiasm.

I scarcely looked up from the volume before I had scanned all its fascinating pages.—Prof. A. J. Cook.

It possesses such a fluent style that its perusal was a great pleasure. Its contents cover all the ground in bee-keeping, from "Beginning" to "Marketing."—*American Bee Journal*.

The book is beautifully written, and commanded my undivided attention from the beginning to the end. In justice to your inexperienced readers, I think you ought to have called it "The Romance of the Blessed Bees."—Rev. L. L. Langstroth.

It has the fascination of a novel. Its English is so simple, terse, and good, that it has given me real delight.—Mrs. Helen Hunt Jackson ("H. H.")

Mr. Allen's book is a very clear and precise account of the way in which he succeeded in bee-keeping.—*Atlantic Monthly*.

The subject is deprived of all dryness and made as interesting as a story, by an accompanying narrative of personal effort, investigation, and industrious application.—*Harper's Magazine*.

His method of procedure is told in simple, beautiful language, and the story is more fascinating than many a novelette with greater pretensions.—*Christian Register*.

These chapters cannot fail to aid in diffusing a knowledge of bee-culture, and they will give, moreover, great pleasure to many readers who have not the remotest anticipation of undertaking bee-culture.—*Denver Tribune*.

The book is written in a clear, concise manner, and will hold the reader spell-bound until he has perused the last page.—*Bee-Keepers' Exchange*.

It is not only valuable, but interesting as a story.—*Detroit Post and Tribune*.

Conveys a good deal of information in a pleasant way.—*Cultivator and Country Gentleman*.

So delightfully written that no one can fail to enjoy it.—N. Y. Churchman.

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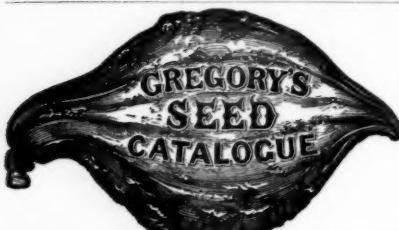
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Three Hundred Colonies.

One hundred Colonies Italian Bees in Langstroth and Simplicity hives; 200 colonies in Triangular hives, black bees, to be delivered on board any Mississippi river packet after winter has passed. I invite Bee-keepers to come and buy cheap.

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